NATIONAL PETROLEUM NEWS

Vol. XVII CLEVELAND, OHIO. February 4, 1925 No. 5

Crude and Refined Markets Strong Through February

Further Advances in Crude Prices are Likely; Tendency of Refiners to Store Gasoline Should Hold Market Firm. Fuel Likely To Hold its Own

Mid-Continent Markets

IT is clearly evident that oil has entered its annual bull market. Crude and tank wagon advances of the past two weeks have been followed closely by refinery markets so that the whole oil price structure is building up.

Keen competition for crude has been heightened rather than diminished by recent advances. And producers are holding back rather than pushing their oil out on the market. It appears likely, therefore, that the crude market will continue to strengthen during February and gasoline prices in tank cars and from the tank wagon will keep well up at the head of the procession.

Mid-Continent refinery operations during January have been on a satisfactory basis. Refiners have reduced their stocks of kerosene, gas and fuel oil and have been able to move 90 per cent of their production of gasoline.

Refiners in this area will want to store more gasoline during February than they did in January. Taking the field as a whole, it appears likely that they will wish to store from 15 to 25 per cent of their production in order to prepare for spring. Largest plants in the field have been accumulating for several weeks and a number of smaller refiners are planning to start now.

This inclination to build up inventories will decrease the amount of gasoline available in the spot market and tend to keep prices in Group 3 close to the tank wagon. Export demand which has been lively during January shows no signs of diminishing yet. On the contrary, exporters have followed the markets up and bought consistently on every rise.

Although some of the largest jobbers in Indiana territory have comfortably large gasoline stocks, the average small jobber has not bought ahead. If the jobbing trade becomes convinced that crude, tank car and tank wagon prices are to continue advancing, the demand from jobbers is likely to increase, thus giving further support to the market.

Gasoline prices are likely to rise during February and bearish influences will meet with determined resistance on the part of refiners.

Kerosene demand has been only fair during January but refiners are looking forward to a better movement as spring approaches and jobbers begin to stock up for the plowing season. Price recessions are not expected.

Lubricating oils have just advanced in the Mid-Continent but are still low as compared with crude costs. Higher prices are likely before February passes, particularly when compounders begin working up motor oils.

Fuel and gas oil prices appear to be about at the top. They have been unaffected by any of the crude advances. Industrial demand is still excellent, however, and prices should not fall to any great extent in February.—J. C. Chatfield.

Chicago Markets

EVEN among experts, the weather is hard to forsee more than a few days at a time and it is therefore an unknown factor in the gasoline demand, but waiving that point there is little to indicate anything but a bull market on motor fuels over February. The jobbers in Standard Oil Co. of Indiana territory have some space in their storage tanks, according to generally accepted signs. The most substantial of all signs is the fact that many of them were quick to get in the market after the second tank wagon advance.

Before the general upward revision in the oil price structure that featured the last few days of January, jobber margins were narrow and they were not buying except from hand to mouth at 8¾ cents a gallon f. o. b. Group 3. The upward trend in tank wagon and crude markets had its influence in bringing in many inquiries so that the last days of January were about the busiest day of the month in the Chicago oil community. On top of that it must be remembered that the last two weeks have not been bad motoring weather.

Bears are disposed to say that the spot price will recede soon as the flurry quiets down, because they say the refiners have taken nearly all of the tank wagon advances thus far. Even if the spot price does slip a little it can not slip far, for the refiners are able to hold only their conventional half of the tank wagon advances they will have a price of 10¼ to 10½ cents. And the consensus of opinion in the trade here is that 10½ is the bottom price on U. S. Motor gasoline over February.

If February weather is fair and there

is no more snow in the offing than January contributed, roads will be passable and gasoline consumption will be a consideration. In that case the price may never see 10½ cents again this month.

Nothing of importance is likely to happen to kerosene prices in February, unless a tank wagon advance is posted in that product. The demand for the rest of the winter can not be much greater by daily average than it has been this far; at least not until the jobbers in the rural districts begin to stock up in anticipation of a spring demand, which for the past two years has not been a factor of enough importence to rock the industry. It is not likely that refined oil will advance or recede much.

Distillate for domestic burners using light fuel will likely advance in price over the month. It is now the weakest item in the oil line and gas oil is being withdrawn from the field of domestic heating on account of improved gasoline prices. The domestic heating done with gas oil will have to be done with some sort of fuel in February, and distillate will have to be used in making synthetic gas oil for domestic use. Straight reduced gas oil will advance in price as surely as gasoline continues strong and crude prices hold up over the month.

Fuel oil of 24-26 gravity and heavier is on the downward path. When it was advancing in price many big industries filled their tanks and they will try to make their stocks last them until the peak price is passed. Fuel oil is costing more than Illinois coal now and some small industries converted to coal when the price passed $1.25 a barrel. Furthermore fuel oil will increase in volume in the field as gasoline manufacture is speeded up, so it is highly probable that $1.35 is the top fuel oil price for February.—Ward K. Halbert.

Western Pennsylvania Refinery Market

GASOLINE and naphtha prices are almost on a level with those of a year ago when Pennsylvania crude oil was 50 cents per barrel higher at the well and that of the Bradford-Allegany district 90 cents higher. The February market will depend mostly on the arbitrary advances in prices of crude and gasoline at the tank wagon. It is expected refiners will absorb a good share of tank wagon advances and pass along to the jobbing trade, or dealer trade as it is called in Pennsylvania, the crude price advances. The market seems to have some momentum left even after its recent rapid movement and further rises all around would not be surprising.

Supplies of gasoline are light at all plants and as the crude situation is still tight, refiners are not worrying whether they move their motor fuel output during February and even March. They are bullish over the 1925 summer prospects.

Kerosene has been the only off product recently in Pennsylvania. There has been an accumulation of kerosene at all but a few plants. Its price has not moved forward with price of crude as might ordinarily be expected. Its season will not start until later in the month when jobbers, particularly those of New York state, start laying in tractor fuel. The price may advance because of costlier crude during the month and toward the end buying will probably give it strength. The tank wagon price of refined oil in Pennsylvania was not changed during 1924 but if crude oil continues to advance, the Atlantic Refining Co. may boost its tank wagon price. Independent refiners should benefit by at least half of any such price increase.

Fuel oil is strong although some resistance has developed to the higher prices of the last few weeks. With higher crude in prospect, refiners with cracking stills will be more likely to pay increasing attention to Pennsylvania 36-40 fuel as a charging oil. Some are already stocking up in anticipation of a heavier gasoline demand by early summer.

Viscous neutrals seem to be the temperamental members of the Pennsylvania products family. One week they will be strong; the next they will be fairly easy, and then grow firmer. Last year they reached the peak for the year in February, 200 No. 3 moving at 34½ cents and some refiners holding out for 35. That market was ruinous as it drove customers into other fields. Refiners probably will be wary of any such prices this year but with buying for spring and summer requirements getting under way this month, higher prices seem probable.

Some refiners are sold up over the month for the various descriptions of cylinder stocks they turn out. Prices of steam refined stocks are 3 to 5 cents higher than they were a year ago. Demand continues to be as great as the rate of manufacture and foreign demand seems to be on the increase. Higher prices are sure to follow any crude price advances and some stiffening may develop if crude price remains stationary.

Wax is scarce and the tendency at present seems to stay firm although the Pennsylvania spot market is ¼ cent higher than the current New York market.—R. B. Stafford.

Mid-Continent Production

OKLAHOMA'S production fell off considerably during the early part of January, and then came back up again until it was about 500 barrels a day greater at the close of the month than at the beginning. This was caused by a steady increase on the part of Papoose, and a stubborn disinclination on the part of Tonkawa to recede far from the 100,000-barrels daily mark about which it has hovered for so long.

These two factors were sufficient to hold the state's output practically level throughout the month, although at the start of the month it had appeared likely that a considerable decline was in prospect. The same prospect presents itself now—that is, that Oklahoma production is more likely to decline than to gain during February. To arrive at this conclusion, we again hazard the opinion that Tonkawa will not come back to its past figures, and that declines in other fields will be sufficient to offset a possible increase at Papoose.

The collapse of Wortham was followed swiftly by advances in Mid-Continent crude, two of them occurring during January. A month ago, it appeared likely that January would end before Wortham had reached its peak of production, and from this standpoint, it appeared likely that crude advances would be delayed until it had passed that point. It was stated at the time that Wortham was the obstacle then standing in the way of higher prices for Mid-Continent crude. The higher prices came almost as soon as it became apparent that Wortham was definitely on the downgrade.

For February, the prospects are for additional crude advances; at least, it seems probable that there will be one more raise in prices, probably along about Feb. 15, or before. Another 20-cent advance, similar to the last one posted Jan. 30, would bring the top price up to $2.15 a barrel, which would make a likely stopping-place for a while, until effects of these increases could be seen in increased drilling and prospective increased production. Last year, the top price for Mid-Continent crude was $2.25, it having reached that price March 8, and it remained unchanged until July, when it had become apparent that plenty of crude was brought to the surface.

If it should happen that this is the year in which crude advances will not result in greatly increased production, through failure to uncover important new fields, much higher prices than those now prevailing of course can be looked for. Judging from present consumptive demands, as revealed by government statistics, which resulted in a withdrawal of more than six million barrels from storage during December, new fields will be imperatively needed to supply the demand during the coming summer.

The coming month probably will see no diminution of the present struggle on the part of the major purchasers to retain their connections and obtain new ones, and on the part of refiners to assure themselves a supply of crude, in spite of rising prices and the necessity

(Continued on page 20)

THIS WEEK'S MARKETS SUMMARIZED

Crude Production By Districts

Oklahoma

	Jan. 31	Jan. 24
Bristow	35,510	36,000
Burbank	58,300	58,990
Cushing	23,250	23,000
Cromwell	36,240	31,390
Healdton	15,700	15,800
Hewitt	16,670	16,800
Osage, except Burbank	35,800	36,350
Papoose	38,160	39,600
Tonkawa	97,270	100,350
Wewoka	11,915	11,215
Other fields	114,150	114,600
Total	482,965	484,095
Decrease		1,130

Kansas

	Jan. 31	Jan. 24
Augusta, Douglass	3,400	3,440
Blankenship district	2,700	2,750
Elbing, Peabody	6,120	6,200
El Dorado	14,710	14,800
Fox, Bush	2,800	2,830
Greenwood county	25,200	26,000
Other fields	29,150	29,300
Total	84,080	85,320
Decrease		1,240

Texas and Coastal Louisiana

	Jan. 31	Jan. 24
Mexia, Richland, Currie	40,870	40,360
Wortham	84,215	135,310
Corsicana, Powell	58,765	59,640
Wichita Falls district	76,085	77,765
Ranger, lime	26,705	27,245
Ranger, sand*	10,100	10,260
W. Texas: Reagan, Mitchell and Scurry counties	12,680	13,700
Panhandle	1,200	1,360
San Antonio, Luling and Mirando	47,450	49,080
Coastal Texas	66,945	67,485
Coastal Louisiana	7,130	7,890
Total	432,145	489,595
Decrease		57,450

*Includes Young, Shackleford, Palo Pinto, Brown, Coleman, and Callahan counties.

Marketing

Oklahoma-Kansas—Gasoline higher because of advancing crude oil and tank wagon prices. Many refiners planning to store more gasoline during February. Quotations on futures refused for present. Export buying continues. Natural gasoline rising. Kerosene more active. All lubricating oils higher. Fuel and gas oils steady.

Chicago—Gasoline higher. Kerosene and gas oil firmer. Fuel oil steady.

Pennsylvania—Gasoline, fuel oil, wax, and cylinder stocks strong. Kerosene steady. Neutrals firm with prices keeping pace with crude prices.

Gulf Coastal—Lubricant prices marked up following crude price advance. Business reported as better than normal. Export demand improves.

New York Export—Gasoline prices advanced but demand fails to increase. Kerosene demand picks up. Diesel oil higher. Gas and fuel oils steady. Lubes in better demand and higher.

New Orleans Export—Gasoline higher but quiet. Kerosene and bunker oil stronger. Gas oil improving. Wax more active.

Pennsylvania Gasoline Advanced

CLEVELAND, Feb. 3.—Northwestern Pennsylvania refiners advanced their prices of gasoline 1 cent today, thereby absorbing half of the gasoline tank wagon price advance in this state today. Other products were generally firm with a few adjustments resulting from last Saturday's crude price advance.

North Louisiana-Arkansas

	Jan. 29	Jan. 22
Caddo, light	9,300	9,234
Caddo, heavy	2,150	2,225
De Soto, Red River	5,000	4,960
Homer	6,795	6,716
Haynesville	15,150	15,210
Bellevue	3,650	4,020
Cotton Valley	7,600	7,665
El Dorado	10,120	12,230
Smackover, light	32,150	30,740
Smackover, heavy	60,400	61,335
Stephens	1,980	2,035
Nevada county	1,074	1,075
Total	155,369	155,935
Decline		566

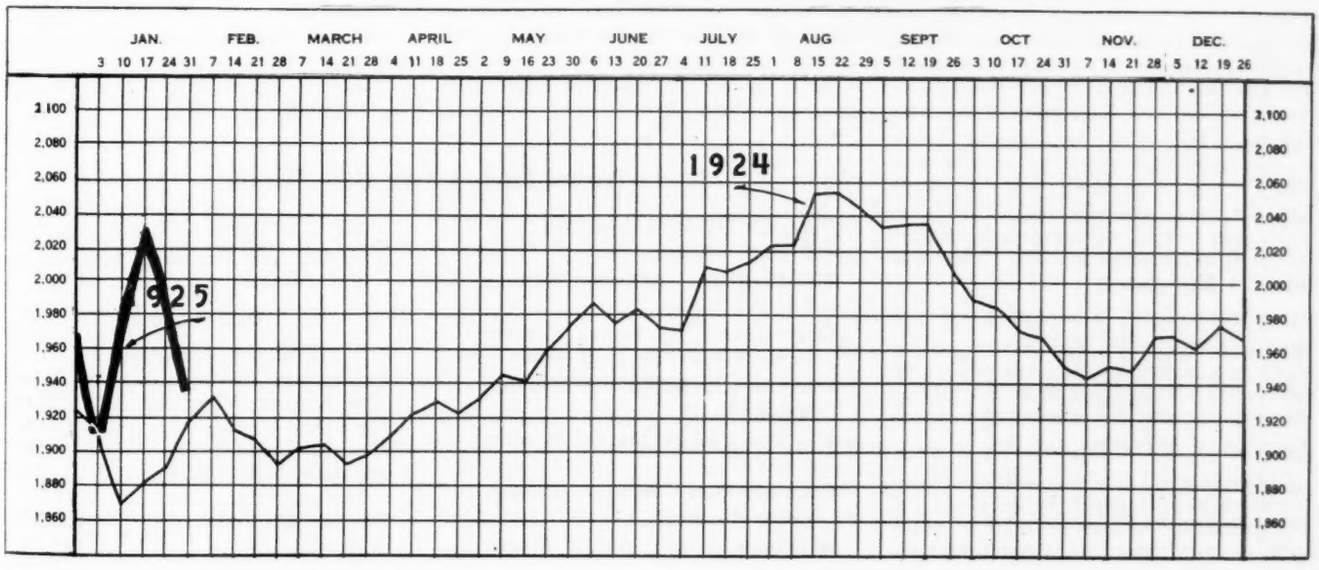
Rocky Mountain

	Jan. 31	Jan. 24
Salt Creek	58,800	54,790
Teapot	2,180	1,785
Big Muddy	3,125	3,100
Grass Creek	1,115	1,010
Elk Basin	760	585
Greybull, etc.	65	60
Rock River	3,300	3,200
Lance Creek	775	700
Poison Spider	150	175
Osage	355	360
Hamilton Dome	100	690
Lander	250	300
Pilot Butte	40	35
Lost Soldier	4,745	4,930
Ferris	125	110
Craig	1,020	1,100
Fort Collins	750	700
Boulder	30	35
Florence	240	225
Cat Creek	3,800	3,115
Kevin, Sunburst	3,350	3,840
Artesia, N. M.	1,000	950
Rattlesnake	100	125
Hogback	480	500
Miscellaneous	200	210
Total	86,855	82,630
Increase		4,225

California

	Jan. 31	Jan. 24
Long Beach	120,000	121,000
Santa Fe Springs	48,000	49,000
Torrance	42,000	43,000
Huntington Beach	40,000	40,000
Dominguez	62,000	65,000
Rest of State	286,000	286,000
Total	598,000	604,000
Decrease		6,000

Watch the Trend of the Week's Production



Mid-Continent Production Forecast (Continued from page 18)

of offering premiums in order to gain attention. This struggle will in fact probably become more intense, especially if production declines and refiners increase their runs in order to lay up a stock of gasoline against the coming spring demand.

The new crude prices already have had the effect of stimulating the entire producing division of the industry, and a great deal of new work undoubtedly will have been started before the first of March. From all angles, then, it appears that February holds out promise of being a prosperous period for the producer, and it may mark the beginning of a brighter era for the whole industry.—A. F. Hinton.

Texas-Louisiana-Arkansas-Production

THE measure of Wortham has been taken, whereupon the Texas fields swing into the category of declines until fresh developments elsewhere begin to show their effect.

Prospects in Central East Texas will be drilled in 1925 for the purpose of further testing fault zone indications near Bazette, in Navarro county, and near Groesbeck and Thornton, in Limestone county. Eventually another fault zone field may be expected in one or more of these areas, but it is not on the cards that such a result is to show up immediately.

The Big Lake field, in Reagan county, will grow steadily toward a producing level of 20,000 to 25,000 barrels daily, which mark may be expected to be reached about the time Humble Pipeline Co. completes outlet facilities this summer. Crude contracted by the Reagan County Crude Purchasing Co., (Marland) from the Big Lake and Texon companies, will move out through the Humble pipeline to the Humble Oil & Refining Co., on a purchase contract made by the latter with the Marland interests.

Sand level pools in the Greater Wichita Falls district will come in for their share of spring development, reacting to the spur of recent advances in posted prices for crude. Elsewhere, throughout the producing territory of the state a quickening of development may be counted upon.

As compared with 1924, the present year may be expected to reach higher producing levels for the whole of Texas territory. "Wildcatting" will be extended into areas not now productive and it is not improbable that fresh pools will be discovered. These, however, cannot be measured in advance.

North Louisiana and South Arkansas remain quiet, but enough test work is going ahead that possibilities exist of new discoveries. Fresh development in a big sense is not clearly indicated, however, so that the operations currently are confined largely to the drilling up of inside acreage, or that bordering field fringes, at Smackover and Cotton Valley. Operations of this character will about maintain production in the immediate future.—Paul Wagner.

California Production

PACIFIC coast draughts on refinable crude and naphtha distillates probably will continue over the next few months, but accretions to heavy crude stocks will have the effect of slightly increasing overall inventories.

The situation in California is generally unchanged. Production promises to continue slightly above the 600,000 barrel daily mark the next month or two.

A lowering in daily average shipments of crude to Atlantic seaboard purchasers has continued since the end of 1924, in line with the policy of California interests of not taking on new commitments. The leveling off process may be expected to keep up over the next few months, but it will be of less general effect hereafter because of this condition having been already discounted.

Active testing operations are being made in scattered localities in the Los Angeles Basin, where fresh developments may be expected in a production sense later in the year. Shallow oil at Inglewood may be followed by more flush deep production in the future; and Seal Beach and Ocean Park Heights will get tests calculated to develop whether they are to prove future fields.

Only Dominguez and Rosecrans promise any considerable drilling activity in the immediate future. Dominguez is not expected to reach above the 75,000 barrel daily average production mark because of the character of acreage control, but there is always the chance of a fresh measure of underground conditions making for an "upset" in the calculations about the field's high mark.

Rosecrans still has possibilities of considerably increased daily production, but the inability heretofore experienced of getting the field above the 10,000 barrel mark has tended to cause this prospect being lightly treated as regards its economic effect.—Paul Wagner.

Use Newspaper Space in Gas Tax Fight

LOS ANGELES, Jan. 30.—Large oil companies are preparing an advertising campaign against a proposal to increase the gasoline tax from 2 to 3 cents. The Standard Oil Co. is printing some 300,000 hand bills which will be distributed to the motorists from its service stations. The Associated Oil Co., Shell Oil Co. and the General Petroleum Corp. are conducting similar campaigns, and it is quite likely that the Union will adopt a like plan.

In its newspaper advertising the Standard is quoting the service station price of gasoline and the tax of 2 cents separately emphasizing that the motorist is not paying the entire 16½ cents as the cost of gasoline.

Independent Petroleum Marketers Association has furnished the governor and the legislature with an estimate of probable income from the gasoline tax in to 1930. The results of the natural increase in the revenues of both the gasoline tax and motor vehicle registration fees are shown to be adequate to allow the state's road building program to continue without increasing the present rates of these taxes.

As a result of a series of news articles published throughout the small town papers of California by the Standard, the company has made numerous friends among motorists and has directly increased the volume of its gasoline business, it is said.

Senator Van Bernard has introduced a bill providing for a tax on crude oil production, the amount of the tax has not been decided upon.

News Index for this Week

Forecast Of Prospects For Present Month 17
Mid-Continent Refinery Figures For Week 21
Only Guides To Power Sources Present Ones, By L. E. Smith..26
Institute Launches Accounting Inquiry 22
Has Automobile Market Become Saturated? 23
Colorado Man Counsel to Conservation Board 25
Skimming Plant Makes Money All The Time, Article 2 13
Carrying on Greasing Business Exclusively 55

Departments

Oil Markets Summarized 19
Production News 35-48
The Editors' Viewpoint 53
Here And There 64
On the Lazy Bench 109
Refinery, Tank Wagon Markets 113-126
Export Markets 118-120
Financial 124-126

National Petroleum News

Compilation Of Mid-Continent Refinery Operations

All Rights Reserved to National Petroleum Publishing Co.

Mid-Continent Gasoline Shipments Almost Balance Production

By J. C. Chatfield

N. P. N. STAFF WRITER

(By Fast Wire Service)

TULSA, Feb. 3

SHIPMENTS of gasoline from 119 refineries in the Mid-Continent increased 4,000,000 gallons or 19.1 per cent during the week ended Jan. 30, according to reports gathered by National Petroleum News.

Despite the fact that the season is midwinter when gasoline is naturally at a low ebb, shipments of 26,345,878 gallons nearly balanced with production of 26,491,677 gallons. Stocks at all plants increased only 250,000 gallons to a total of 67,068,856 gallons.

Fourteen plants in north Louisiana and Arkansas reduced their gasoline stocks 1,200,000 gallons to 3,457,952 gallons. North and central Texas refiners shipped 95.4 per cent of their gasoline production for the week and increased stocks 320,000 gallons to 13,289,600 gallons. The 45 refiners in Oklahoma from whom reports were gathered, increased their stocks of gasoline only 850,000 gallons to 37,509,662 gallons. In Kansas 21 plants increased stocks only 200,000 gallons to 12,811,642 gallons, shipments being 96.9 per cent of production.

The small accumulation of gasoline was made in spite of the fact that runs of crude and semi-refined oils were increased in all fields. Kansas refiners increased their runs to stills 3500 barrels per day to 63,360 barrels or 66.2 per cent of the rated capacity of 95,700 barrels per day. Oklahoma refiners increased their runs 2,400 barrels per day to 107,838 barrels or 69.4 per cent of their rated capacity of 155,400 barrels per day.

The increase throughout of north and central Texas plants was 1600 barrels to 83,400 barrels or 61.9 per cent of capacity. North Louisiana and Arkansas refiners increased runs 1300 barrels per day to an average of 36,900 barrels per day which represented 72.5 per cent of their capacity of 50,900 barrels per day.

Kerosene Stocks Cut

With the exception of the Louisiana-Arkansas fields all groups reduced their stocks of kerosene. Kansas stocks were cut 200,000 gallons, Oklahoma stocks 300,000 gallons, and Texas stocks 20,000 gallons. In Louisiana and Arkansas stocks increased 100,000 gallons. Total stocks were cut 400,000 gallons to 18,495,676 gallons.

Demand for gas and fuel oil lagged in all fields. Stocks were increased for the first time in many weeks. Oklahoma refiners added the largest amount of heavy oils to their inventories. Shipments were 8,307,852 gallons while production was 12,273,972 gallons, increasing stocks roundly 4,000,000 gallons to 53,845,920 gallons. In Kansas stocks were increased around 600,000 gallons and in north and central Texas the increase was approximately the same figure. In Louisiana and Arkansas shipments almost balanced with production the increase in stocks being only 70,000 gallons. In all fields stocks increased 5,200,000 gallons to 118,578,630 gallons.

At the rate of shipments maintained during the week gasoline stocks represented 18 days' supply, kerosene stocks 20 days and gas and fuel oil stocks represented 26 days' supply.

Wisconsin Jobbers to Meet

MILWAUKEE, Feb. 3.—The Wisconsin Independent Oil Jobbers Association will hold its next meeting on Feb. 18 at the Lorraine hotel, Madison, according to an announcement sent out by E. Rentmeester, secretary and treasurer.

Mid-Continent Refinery Figures Week Ended January 30

(By Special Telegraph Service)

	Kansas	%Change Previous Week	Oklahoma	%Change Previous Week	No. & Cent. Texas	%Change Previous Week	No. La.-Ark.	%Change Previous Week	Total	%Change Previous Week	Totals Week ended Jan.2
No. of plants.....	21		45		39		14		119		117
Da. Still Cap. (bbl.).	95,700		155,400		134,800		50,900		436,800		435,000
Da. Av. Crude Run.	49,771		99,611		72,975		27,581		249,938		214,086
Da. Av. Other Oils..	13,589		8,217		10,425		9,319		41,550		38,659
Da. Av. Total to Stills.....	63,360	+ 5.9	107,828	+ 2.2	83,400	+ 1.9	36,900	+ 4.5	291,488	+ 3.2	252,745
GASOLINE—Gallons											
Stocks Jan. 23.....	12,608,000		36,665,184		12,963,469		4,686,404		66,923,057		56,813,560
Prod. 1-23 to 1-30...	6,516,471	+ 1.9	10,783,313	+ 1.7	7,114,615	+14.5	2,077,278	+10.8	26,491,677	+ 5.6	23,634,614
Ship. 1-23 to 1-30...	6,312,829	+ 2.9	9,938,835	+18.8	6,788,484	+27.1	3,305,730	+45.5	26,345,878	+19.1	21,441,347
Stocks Jan. 30.....	12,811,642	+ 1.6	37,509,662	+ 2.3	13,289,600	+ 2.5	3,457,952	—26.2	67,068,856	+ 0.2	59,006,827
Ratio Sales to Prod.	96.9%		92.2%		95.4%		159.1%		99.4%		90.7%
KEROSENE—Gallons											
Stocks Jan. 23.....	3,030,460		9,751,241		5,483,702		622,144		18,887,547		21,632,733
Prod. 1-23 to 1-30...	1,449,275	— 5.5	2,328,974	+ 1.2	1,796,463	— 0.8	469,700	—11.4	6,044,412	— 2.1	6,155,595
Ship. 1-23 to 1-30...	1,625,703	+ 7.2	2,635,606	— 8.8	1,811,862	+ 1.0	363,112	—49.2	6,436,283	— 5.5	7,302,256
Stocks Jan. 30.....	2,854,032	— 5.8	9,444,609	— 2.1	5,468,503	— 0.3	728,732	+17.1	18,495,676	— 2.1	20,486,072
Ratio Sales to Prod.	112.2%		108.8%		100.9%		77.3%		106.5%		118.6%
GAS AND FUEL OILS—Gallons											
Stocks Jan. 23.....	10,189,941		49,879,800		39,200,486		14,080,322		113,350,549		115,890,625
Prod. 1-23 to 1-30...	6,854,591	+ 8.4	12,273,972	+ 0.4	10,828,895	—12.6	7,030,585	+ 2.2	36,988,043	— 2.1	52,942,276
Ship. 1-23 to 1-30...	6,275,528	+ 1.1	8,307,852	—28.4	10,216,115	—18.8	6,960,467	— 2.2	31,759,962	—14.4	34,832,698
Stocks Jan. 30.....	10,769,004	+ 5.7	53,845,920	+ 8.0	39,813,266	+15.6	14,150,440	+ 0.5	118,578,630	+ 4.6	114,000,203
Ratio Sales to Prod.	91.6%		67.7%		94.3%		99.0%		85.9%		105.7%

Institute Launches Task of Compiling Manual on Oil Accounting

Staff Special

CHICAGO, Jan. 30.

A WORK comparable in importance to what it has done in standardization oil field equipment was launched by the American Petroleum Institute here today, when a committee of auditors and accountants for oil companies all over the country met to take up the task of working out a uniform method of accounting for all branches of the industry.

The necessity of such work on the part of the institute was discussed in group sessions at the convention of the institute in Fort Worth last December. It was left to W. M. Mattison, tax expert with the institute, to name a committee to start the task. It was this committee which met here at the Congress Hotel. The committee consists of 18 men from all sections of the country, including California, which had two representatives here today.

This committee of 18 is divided into regional sub-committees which are to organize for the work in California, the Rocky Mountain region, Oklahoma, Texas and the Appalachian district. These sub-committees will enlarge their regional representation to give ample opportunity to study the most advanced practice in oil company accounting in all branches of the industry in their own districts.

Mr. Mattison of the institute was named by the committee to serve as its permanent chairman. Much of the work of compiling what the industry is already doing in the way of accounting and picking from present practice the procedure that may be suggested as uniform will fall on his shoulders. He is well equipped for this task because of his three years' work with the institute on tax matters and his previous service in the internal revenue department.

"We do not want the industry to feel that we are going ahead to draw up a manual of accounting which will be forced upon any branch or any company," he stated. "We want every association and every individual with every oil company who feels that he may have something helpful in this task to have a chance to put his ideas before us. That will be provided for in the organization of the regional sub-committees.

"We believe a real service can be accomplished for the industry in drawing up a manual of uniform accounting. For the big companies, who now have the services of the best men that can be obtained for this work, our work will mean largely an opportunity for them to exchange ideas on the subject. For the smaller organizations, however, we expect to be able to present a general outline of the subject that will be of practical value.

"We will start by drawing up a consolidated balance sheet that represents the best practice in the industry and takes care of the needs of the four major classifications of the business, production, transportation, refining and sales or distribution. This balance sheet will be classified as to detail. We expect to be able to give a company, large or small, in any branch of the industry the general outline it should follow in putting into effect an accounting system which has been shown by experience to best meet the demands of the business."

Following are the men on Mr. Mattison's general committee; L. H. Atwell, Jr., Humble Oil & Refining Co., Houston, Harold Butt, Tide Water Oil Co., New York, Rodney Durkee, General Petroleum Corp., Los Angeles, H. A. Gidney, Gulf Oil Corp., Pittsburgh, F. J. Huffman, South Penn Oil Co., Pittsbourgh, H. G. Humphreys, Skelley Oil Co., Tulsa, C. H. Jay, Pure Oil Co., Columbus, Paul R. Jones, H. L. Doherty & Co., New York, R. D. Matthews, Union Oil Co., Los Angeles, F. G. Reitzel, Sun Oil Co., Philadelphia, E. G. Seubert, Standard of Indiana, Chicago, L. S. Sinclair, Magnolia Petroleum Co., Dallas, G. F. Smith, Continental Oil Co., Denver, J. H. Tuttle, Standard Oil Co., of California, San Francisco C. B. Ware, Carter Oil Co., Tulsa, A. F. Whiting, Louisiana Oil Refining Corp., Shreveport, G. F. Winters, Phillips Petroleum Co., Bartlesville.

All were present today with the exception of Messrs. Hugman, Matthews, Reitzel, Whiting and Smith. B. E. Ireson, also of the Continental Oil Co. of Denver, represented Mr. Smith.

Mr. Mattison expects to go immediately to California from Chicago to undertake the organization of the regional sub-committee there and stay there until the best practice of the California companies on accounting is compiled. He will then take up the work in other districts. He hopes to have the work in shape to present pretty much completed at the next annual meeting of the institute.

This Week's Price Changes

Following are changes in crude oil and gasoline prices posted since those which appeared in the issue of Jan. 28, page 18. In that issue all changes which had been made in 1925 were published and with the following, give the record for this year.

Crude Changes

Jan. 29.—Gulf Coastal crudes advanced 25 cents by Gulf Production Co., and met on same day by Humble Oil & Refining Co. and The Texas Co. This is first advance on these grades this year.

Jan. 30.—Mid-Continent and North Texas crudes advanced from 15 to 35 cents by Prairie Oil & Gas Co., and two new grades of light oils established. The advance was met on the same day by all major purchasers.

Jan. 30.—Magnolia Petroleum Co. met Prairie's advance on all grades of Mid-Continent and north Texas crudes except on oils below 31 gravity. Magnolia's prices on grades differing from Prairie's schedule are: Below 28, advanced 15 cents to 90 cents; 28 to 30.9, advanced 15 cents to $1.15; 31 to 32.9, advanced 20 cents to $1.35.

Jan. 30.—Currie, Powell and Richland crudes advanced 30 cents to $1.80 each by Humble Oil & Refining Co., and Mexia and Wortham advanced 25 cents to $1.75. Moran crude was advanced from 15 to 20 cents. Humble met Prairie's advance on Ranger and north Texas crudes it purchases.

Jan. 31.—Corsicana light crude advanced 30 cents to $1.80 by Magnolia Petroleum Co. Magnolia met Humble's advance on Wortham.

Jan. 30.—Louisiana-Arkansas crudes advanced 20 cents by Standard Oil Co. of Louisiana, except Smackover and Cotton Valley, which were advanced 15 cents, and Bellevue, which was up 25 cents. Advance was met on same day by Louisiana Oil & Refining Corp. and Shreveport-El Dorado Pipe Line Co., and on Jan. 31 by Gulf Refining Co. and The Texas Co. On Jan. 30, Louisiana Oil & Refining advanced Stephens crude 20 cents. On Jan. 30, Louisiana, Gulf and Dixie Cos. met the advance on Bellevue, and Gulf posted $1.15 on East El Dorado crude.

Jan. 31.—Pennsylvania, Somerset medium and light, and Cabell crudes advanced 25 cents, and Ragland 15 cents, by Joseph Seep Purchasing Agency.

Jan. 31.—Central States crudes except Waterloo advanced 25 cents by Ohio Oil Co.

Jan. 31.—Wyoming crudes advanced from 20 to 40 cents, and Montana from 7 to 20 cents by Ohio Oil Co. and Midwest Refining Co. Salt Creek, Grass Creek light, Elk Basin, Rock Creek, Lance Creek, Osage, Cat Creek and New Mexico crudes were advanced 20 cents; Big Muddy, 30 cents; Mule Creek, 40 cents and Sunburst, 7 cents.

Feb. 2.—Corning crude advanced 25 cents to $1.95 by Joseph Seep Purchasing Agency.

Feb. 2.—Corsicana heavy advanced 10 cents to $1.00 by Magnolia Petroleum Co.

Gasoline Changes

Jan. 28.—Atlantic Refining Co., 1 cent in Pennsylvania and Delaware.

Jan. 28.—Continental Oil Co., 1 cent, through its territory except in Idaho.

Jan. 30.—Standard Oil Co. of New Jersey, 1 cent, New Jersey and Maryland, except at Baltimore.

Jan. 31.—Standard Oil Co. of New York 1 cent, New York state and New England, making third advance this year.

Jan. 31.—Standard Oil Co. of Indiana, 1 cent through territory, making third 1-cent advance this year.

Jan. 31.—Standard Oil Co. of Nebraska, 1 cent through state.

Feb. 2.—Standard Oil Co. of Kentucky, 1 cent, in Kentucky only except at Covington.

Feb. 2.—Magnolia Petroleum Co., 1 cent, Oklahoma and Texas.

Feb. 3.—Atlantic Refining Co., 2 cents Pennsylvania and Delaware.

Feb. 3.—Standard Oil Co. of New Jersey, 2 cents, through entire territory.

Feb. 4.—Standard Oil Co. of Ohio, 1 cent, through Ohio.

Feb. 4.—Standard Oil of New York, 1½ cents, throughout territory.

Feb. 4.—Magnolia Petroleum Co. 1 cent Oklahoma and Texas.

Kerosene Advances

Feb. 4.—Standard Oil Co. of Ohio, 1 cent, through Ohio.

Export Gasoline Advance

NEW YORK, Feb. 3.—Feb. 3 Standard Oil Co. of New Jersey advanced export gasoline prices 1 cent.

Has the Automobile Industry Reached a Practical Saturation Point?

HAS the increase in the number of automobiles in use about reached its maximum, is a question raised by the following article just published in the Jan. 28 number of Advertising And Selling Fortnightly, a leading sales and advertising paper.

It's most any one's guess as to whether the author is right but, undoubtedly the general opinion is that he is talking in the right direction that the big consumption of cars is over and their increase from now on will be at much lower rate.

The article is one that every oil man—producer, refiner and marketer should study, for if the author is anywhere near right it means much lower percentage of increase in gasoline gallonage for 1925.

Gasoline consumption increase has been running around 17 to 20 per cent a year for some years now so that many in the industry accept such an increase as an assured fact for years to come. Registration figures show that the increase in cars dropped from a gain of 24 per cent at the end of 1923 to 17 per cent at the end of 1924. The author makes no prediction as to this year but he quotes two high General Motor officials as admitting that the saturation point has been reached.

To the oil man this should mean, proceed cautiously this year and not get frantic and cut the price because he may not get the same increase in gallonage as last year.

To the refiner this means conservative operation—make what the market will consume currently and go slow.

To the producer this warns against such drilling as will materially increase current production.

The refiner will be able to make a great deal higher percentage of gasoline, should a pinch in crude come, not only through his cracking stills, which would be increased in number, but through still better methods of refining.

Any excess of demand after such a period of gasoline surplus as the industry has suffered from the past few years prompts to far greater production than the industry had any idea of. So the oil industry should beware of the ability of the refiner to increase his gasoline yield (including natural gasoline) from 33 per cent the past year to a possible 38 or 40 per cent or even higher, even in one year's time. The refiner is exceedingly skilled and resourceful and this skill has not been called upon for greater yields for a good many years.

The industry doesn't need more crude but higher prices for present crude. The refiner by getting higher gasoline yields, will be able to make up for a most considerable "shortage" of crude.—W. C. P.

* * * * *

By Roger F. Davidson
In Advertising & Selling Fortnightly

THE automobile field needs critical comment and cool appraisal—and rarely gets it. It has lived for twenty years in a bonanza atmosphere. Now that the industry, by force of necessity, is emerging from this bonanza stage into that of a "regular" industry, very naturally there is a lot of yeasty ferment to get over with.

A typical situation is presented with the beginning of 1925. The automobile folks had dreamed big things for 1924. Ford and General Motors alone had planned for 4,200,000 cars and, with the other makers' plans, a total of nearly 6,000,000 cars was talked of.

What were the actual 1924 sales? Just 3,650,000—nearly a million cars less than Ford and General Motors alone had planned to turn out in that year.

Having hobbled through 1924 champing at the bit to "go" and transferring the dreams for 1924 to the new year 1925, with compound interest, on account of the boost given to optimism by Coolidge, Hoover and the stock market, the automobile men were pawing the ground to be off by the time this winter's automobile shows were held. Roseate visions of a wonderful year were everywhere to the fore.

Then came a surprise in the shape of price reductions. The Packard made an average reduction of $750 on its closed car models—which is some reduction. Ford and Dodge made reductions before the end of the year and the price reduction deluge has to date of this writing affected sixty different models of cars. Thus the price level of today is quite definitely lower than the pre-war level, in contrast with the U. S. Bureau of Labor index showing general prices standing at 61, above the pre-war level of 50. An automobile dollar—even before many of the price reductions—bought $1.11 worth, whereas the grocery dollar bought only 61 cents' worth. The average automobile price was $814 on January 1; it is now probably below $800 for the first time in history.

Competent economists, or just plain hard-headed business men who know something of the automobile field, understand precisely what this means. It means that the automobile business is pushed still more definitely toward the large production goal; which in turn means fewer manufacturers and, in turn again, consolidations. Speaking more bluntly, it means the "passing out of the picture" of still more of the lesser companies. Few people seem to realize that, even in 1923, nine-tenths of the total manufacture of automobiles was in the hands of only ten companies, six companies making 85 per cent of the cars. A bare 15 per cent was being manufactured by the other 95 manufacturers. This centralizing tendency is now naturally still further accentuated.

Automobile prices, like sugar or steel prices, make the market and determine by hard economic law the number of manufacturers. The number of manufacturers has declined in direct ratio to the decline in price, until today something over two-thirds of cars are made by only two manufacturers. The automobile business, once darling of the public, is caught squarely in the jaws of the most ruthless law known to man—the law of supply and demand, plus the new twists and tortures which high-grade civilization have given to it.

The truth is the automobile is this year facing a hard job, one of the hardest that any very large industry ever faced. It is going to be no fat bonanza year. The "crimps" are being applied from various and sundry angles. Chief of these is the competitive necessity of selling at low prices. Next is the increasing independence of dealers, who no longer care to stand for the old system of overstocking them by force. Next is the banker's limitation of sales by credit on dangerously easy terms (bear in mind that 75 per cent of autos are sold on "time"). Next are the discouraging conditions of driving in nearly all cities of over 100,000 population, with the large cities in a positively shocking state. Next is the used car problem; and following that is the good roads problem.

Here are two handfuls of considerations of the most serious kind. What are automobile manufacturers going to do with them? Some of them appear to be attempting to scale blank stone walls which will only rise higher if another number of automobiles equal to that of 1924 is sold this year.

The big companies can finance selling abroad, which is one big way out (only 10 per cent of sales are export sales at present). Also they are able to follow Ford downward in price. Studebaker, Ford and General Motors have made, or are making, themselves into "vertical trusts"—which is the steep path that successful automobile leadership now must tread. They have iron foundries and parts factories (in Ford's case even his own ore mines), and they utilize the very gases of the furnaces and the sawdust of the lumber mills, after the legendary manner of the pork packers.

We have today 17,000,000 automobiles in the United States. This is getting

pretty close to one per family if a lot of families who are not possibly new car buyers are counted out. Still there are automobile statisticians who say this is only "half" of the potential market. They figure that 80 per cent of the gainfully employed people in the United States (about 40,000,000) are car-buying prospects capable of absorbing 33,000,000 cars. When that stage is reached, they aver, the annual replacement market alone will be 5,000,000 cars per year. They say that in 1930 the registration figure will be 25,000,000 cars. This is 9,000,000 cars more than in use now.

Taking these optimists at their own estimate, what becomes of the automobile manufacturing pace? At the present rate—even 1924's restricted rate—this additional number of cars will be supplied in three or four years, even counting replacements. We will then, according to the optimists' own predictions have reached real saturation, without very heavy sales for the next five years. In the meantime, the New York Police Department has already thrown up its hands at traffic conditions and even a city like Washington has sent out a call for help. What, it may be asked, is to be done with the 55 per cent further congestion?

Closer and more critical study of the number of cars in use in the United States shows that three states, New York, California, Ohio, Pennsylvania and Illinois (in which most of the larger centers are), have now more cars than the entire United States had as recently as 1918. California now has one car for less than every three persons—practically one for every family.

It is all very well to say that if the rest of the United States was brought up to California's level we would have 40,000,000 cars, but such a hope is obviously ridiculous, since the large cities could neither afford nor house nor handle as traffic such a number of automobiles. As a matter of fact, Iowa, Kansas, Minnesota, Missouri and North Dakota now have one car for less than each five persons, which, when it is considered that 4.6 persons is the standard computation for a family, is practically one for each family.

To look at the situation positively and from a hopeful selling point of view it would appear that the South and Southwest are the best 1925 stamping grounds for sales. Alabama has the fewest cars per capita. The largest percentage gain in 1924 was made by Florida, 42.5 per cent, while North Carolina had 39.9 per cent and Mississippi 28.4 per cent increase. Considering that the average increase was only 17.5 per cent for the whole country and considering also the improved cotton situation and the extensive remedying of the one-crop evil with varied crops now going on there is good ground for expecting good sales in the South.

The average life of a car is now eight years. It was six years only recently, which indicates a further factor of sales limitation. There were 874,472 cars discarded last year.

These are facts, and stern facts. The automobile industry must face them with a higher degree of generalship than has yet been evidenced. The startling truth is that our entire system of roads and streets and building must be altered to meet the proposed automobile era. Actually many billions of dollars will have to be spent in remaking streets and roads, which have all been laid out with a small number of vehicles in mind. Such a program is naturally financially impossible to accomplish, at the speed which present automobile growth would demand. This means a slowed-down pace for the auto makers.

From a merchandising point of view, then, the automobile field will this year be highly competitive. It will demand vigorous advertising campaigns, and closer dealer co-operation than the automobile field has ever known. Ford is rumored to be about to launch a $4,000,000 newspaper campaign, and at least a dozen other automobile companies are laying plans for increased advertising (Overland, Durant, Flint, Rickenbacker, Cadillac, Packard, Peerless, Pierce Arrow, Essex, etc.)

What is more, the time-honored inanities of automoble copy are due for retirement. The "billboard," "announcement," performance boast and bombastic "atmosphere" type of copy will, in all likelihood, give way under pressure to a more able, creative, educational type of copy.

A. B. Hardy, president of the Olds Motor Works, a General Motors division, and C. F. Kettering, president of the General Motors Research Corporation, both admit that the saturation point has now been reached. While still retaining the inalienable optimism of their industry, these men have respect for facts. They point out that while in 1922 there were about ninety exhibitors at the automobile shows, there were only fifty this year; indicating that in three years time the active manufacturers have been reduced almost half.

"The saturation point is reached, and might as well be faced," says Mr. Hardy. "Figures for 1924 show that seventeen companies manufactured and sold 96 per cent of all cars merchandised in this country—leaving but four cars in every hundred to be divided among the other thirty-odd makers. It is likely that in 1925 these seventeen leading companies will do their utmost to sell 98 per cent of the total number of cars sold."

Mr. Kettering was not afraid to announce the arrival of the saturation point to the Oldsmobile dealers at their dinner during the show. There will be millions of cars sold in 1925—at least as many as in 1924, in the opinion of these men. But the end of the abnormal demand for cars which has prevailed during the past decade is certainly here, in the opinion of both men.

Automobile men went home from the shows more soberly calculating their future than has been the case for a long time. This is evidenced by the fact that a production for the first quarter of 1925 of 750,000 cars and trucks is estimated, as against 1,000,000 production in the same period last year, although only 800,000 were sold.

Five Technical Papers at Refiners' Meeting

(By Fast Wire Service)

TULSA, Feb. 2.—Five authorities on refinery operations have been selected to present technical papers at the annual convention of the Western Petroleum refiners association to be held at Kansas City March 3, 4 and 5 it was announced today by Howard Bennett, managing director.

The association's technical committee headed by C. L. Henderson, vice president of the Vickers Petroleum Co., Wichita, has spent several weeks rounding out that part of the program.

The second day of the convention is to be devoted exclusively to technical discussions. Other days will be taken up by operators meetings and sessions of traffic, sales and credit departments.

Dr. C. K. Francis, consulting engineer, is to read a paper on treating at the technical sessions stop. Doctor Francis is well known in the Mid-Continent as a refiner and chemist, having been chief chemist of Cosden & Co. and vice president of the Producers & Refiners Corp. Towers will be discussed by W. A. Peters of E. B. Badgers Sons Co. Mr. Peters has done experimental work on tower construction for the Dupont interests.

Dr. F. W. L. Tydeman who specializes in research work for Roxana Petroleum Corp. will read a paper on corrosion in a petroleum refinery.

H. W. Camp, general superintendent of the Empire Refineries Inc. is to read a paper on developments in design and operation of topping plants. Ray Miller safety engineer for the Marland Refining Company is to speak on safety work in petroleum refineries. Informal discussion of the subject matter of papers and allied refining problems will succeed the presentation of the papers.

Deep Test Abandoned

FORT WORTH, Jan. 31.—What is believed to be the deepest hole ever drilled in Texas has just been abandoned in Reagan county by the Texon Oil & Land Co. at a depth of 6002 feet. This is considerably east of the Reagan county producing pool, and is in Section 22, Block 9, University lands.

There was 2040 feet of open hole when drilling was stopped, and a wire line three-fourths of an inch in diameter was used.

CHICAGO.— The Iowa Independent Oil Men's Association will hold its annual meeting Feb. 12 and 13 at the Fort Des Moines hotel, Des Moines.

Colorado Man is General Counsel of Conservation Board

Staff Special

WASHINGTON, Feb. 2

AT THIS time the government officials who started the oil conservation move are devoting more time to speculating as to the attitude of the men in the oil industry than they are in devising questions to develop the information they think will be needed by them. They take the assurances of cooperation as having been given in good faith by the men who gave them but they have learned one thing about which they had not before done much thinking.

That one thing is that, while the leather-lunged and limber-jawed have talked glibly about the "oil trust" there is less cohesion among the units in the industry than probably any other. They have learned that there are sharp divisions even among the men constituting the so-called Standard oil trust.

Having found out that fundamental fact they find themselves at a loss to estimate just how much the assurances of support signify. There are some expressions of doubt as to whether the inquiry will get even a good start. There can be no start unless the industry says there shall be.

Not one word of statutory law authorizes the work that is being done. The item in the deficiency appropriation bill provides $50,000 for the expenses of the board. However there is no enactment providing for such a board. The treasury, when it pays out money under that appropriation bill have to take the word of somebody that the person receiving the money is authorized to receive it.

Because there is no law authorizing the creation of the Board its announcement this week that Charles W. Waterman, of Denver, had been appointed general counsel caused something of a gasp. The name applied to him created the impression that there were to be other lawyers. What were they to do, was one of the questions asked, for a board for the creation of which there was no statute. What law advice was he to give and why, the curious asked. The Board's announcement of his appointment conveyed no information on the points concerning which there was curiosity.

The general counsel, the announcement indicated, had been prominent in politics in Colorado. At one time he was a partner of Edward O. Wolcott, a Republican senator from Colorado who did not bolt the party when McKinley was nominated and the veteran Senator Teller, although he had been secretary of the interior and a leader in his party, bolted the convention that nominated McKinley and became a Silver Republican and later a full-fledged member of the party which he had theretofore opposed. Mr. Waterman was also a delegate at large to the Cleveland convention and in fact was the personal representative of President Coolidge in his pre-convention campaign. The announcement of his appointment was as follows:

"Charles W. Waterman, of Denver, Colo., one of the outstanding lawyers of the west, who acted as the personal representative for President Coolidge in Colorado during the pre-convention campaign, will serve as general counsel to the Federal Oil Conservation board, with headquarters in Washington, according to an announcement by the Board today.

"Mr. Waterman is a native of Vermont, a graduate of the University of Vermont and the University of Michigan and at present a trustee of that institution. After graduating from college, Mr. Waterman subsequently taught school in Connecticut and Iowa. Later he migrated further west, becoming a member of the law firm, at Denver, of Wolcott and Vaile, the former member of the firm at one time having represented Colorado in the United States Senate. At the death of Senator Wolcott, the law firm was reorganized and was known as Vaile and Waterman, until the death of Mr. Vaile, when Mr. Waterman became the directing head of the firm. As a member of this law firm, one of the largest in the West, Mr. Wateran participated in many of the most notable cases before the courts of the country, and has enjoyed the reputation as one of the ablest members of the American bar.

"Mr. Waterman has always been prominent in the councils of the Republican party and during the last campaign he ws a delegate at large from Colorado to the Cleveland convention. He has never held a public office but rather has devoted most of his life to the study and practice of law, though of recent years he has not participated as actively as in the past in the actual presentation of cases before the courts, devoting most of his time as a consultant or advisor in important litigation.

"With Mrs. Waterman, the new general counsel of the President's oil board is spending the winter in Washington at the Wardman Park hotel."

FORT WORTH.—Announcement was made this week of the purchase by the Rosel Oil Co. of Breckenridge of the properties of Putnam, Barker and Adams in the Olden field, Eastland county. The leases comprise 225 acres, with three producers. The pay is found around 1450 feet. The price was announced as $76,000.

Attorney General Asks Evidence on Prices

OKLAHOMA CITY, Jan. 30.—Distributors of gasoline in Oklahoma were asked today by George Short, attorney general, to submit a record of all price changes which have been made between Aug. 15, 1924 and Jan. 1, 1925, together with the evidence of competitive prices which caused the change to be made. The request came at the close of an informal inquiry at the capitol which consumed the entire day.

The investigation of gasoline prices in Oklahoma which is now in progress was instituted last summer when competitive conditions caused a wide variation in prices in various parts of the state. In some sections gasoline was selling 4 cents per gallon higher than in others only a few miles apart. Attorney General Short was deluged with letters from people over the state asking him to investigate the reason for the prices.

By questionnaire and other means the attorney general has collected a large number of price schedules. He laid these before the representatives of a group of companies today and asked the reason.

"We met competition," the oil men said.

"Show me," the attorney general replied.

In a statement to the group this afternoon Short said that he believes that the oil companies have been violating the anti-discrimination statutes of Oklahoma. He stated that he may be forced to file a suit against one or more companies to test out the law and ascertain its meaning.

Short made particular reference to rebates given in the form of rentals, commissions and the like paid to get business. He said he thought the oil men probably need to be protected against each other, from what he has been able to pick up.

Reference to a number of individual cases were made during the course of the day. At the morning session complaint was made about the gasoline price at Pauls Valley not being lowered by the Magnolia Petroleum Co. one time last summer when it made a general change. J. L. Green of the Magnolia was able to show copies of correspondence in his files at the afternoon session which showed that price instructions had gone astray and that the reduction was made a few days later when the error was caught.

At the close of the session Judge C. B. Ames, general counsel for The Texas Co., asked the attorney general in the name of the oil companies for an opinion construing the Oklahoma statute. He said that if such an opinion is given the oil companies will have a clear understanding of the law and a common standard to judge their operations by.

Only Guides to Future Power Supply are Present Utilized Sources

THE fundamental thing which has prompted the government to take up oil conservation is a realization of the tremendous increase in the country's demand for power and an appreciation that our power is derived commercially from only three sources, viz coal, water and oil.

The country's deposits of coal are definitely known and they will stay where they are until used. Much progress is still to be made in the efficient use of coal. The government and all industry is pushing this work rapidly.

Water power is definitely located and water will be here as long as there are humans. However getting power from water is still in early commercial development. It still holds much financial hazard. Universal application of the energy generated from that water power is still in its infancy and fraught with doubt, especially for detached use, as in motor vehicles.

Oil, as to its quantity under the ground, is the great unknown factor and yet it is today supplying more than half the horse power used in this country, according to conservative estimates. The demand for power from oil is increasing far greater than the demand for any other form of power.

But above all, so far as practical commercial knowledge goes today, petroleum is the only source for the lubricants necessary to keep all the other forms of power running. Without petroleum lubricants, in the state of our present knowledge, our use of the other two present day sources of power, would have to revert to that of the primitive slow speed period that ended with the discovery of petroleum sixy years ago.

The government fully realizes the possibilities of science developing entirely new forms or sources of energy. The hundreds of government scientists the country over, yes the world over, are steadily pushing into the unknown seeking to release the energy of the atom, of the heat of the sun, of the motion of the earth and all terrestrial bodies etc. While considerable is known of all these and much more seems to be accurately surmised, and tomorrow one of these sources may be made available, still the government appreciates that tomorrow may not come for a hundred or a thousand years. And it is today that the citizens of the U. S. are living and these citizens will have children and grandchildren in the immediate tomorrow. Against this immediate tomorrow there are only three known sources of power and one of them we have no knowledge at all as to the extent of—that is oil.

Lawrence E. Smith, production writer from the Cleveland office, was sent by N. P. N. to Washington to dig deep into the background of the government's oil conservation aims. Following is his second article. Here he discusses the glorious visions of the scientist and the practical facts of today as the government sees them.

No oil man can afford to miss studying every word of information on oil conservation for it is a subject that will be with us in greater and greater reality as the demands of future years come on us. The industry and the government have started down a road from which there will be no deviating nor on which there will be any turning back, no matter how many chuck holes and stumps we may run into.

National Petroleum News aims in this and subsequent series of articles, to give the oil man all the information possible on all the many ramifications of the subject, in order that the industry may govern its steps down this new road with all the intelligence present day knowledge will afford.—W. C. P.

By Lawrence E. Smith
N. P. N. Staff Writer

WASHINGTON, Jan. 29. *OIL, distilled from coal, is being used as fuel for internal combustion engines. A Russian invented this. A French engineer has brought out an automobile that operates on crude petroleum. He drove it 400 miles, accompanied by Dutch, Irish and Peruvian engineers.*

Within a short while automobiles will run on alcohol, gas made from cornstalks and giant cactus, or will be powered by dust explosions. The Germans, who are very ingenious, will bring this about.

"Static" will soon be the force that will attend to all transportation and power needs, there being enough not used by radio sets to handle the job nicely. American engineers have all plans made for this.

Such items are constantly being printed in the newspapers. Usually the revolutionary discovery has been made in some country rather far away from the place of publication and the commission of a fortuitous murder diverts attention of the readers and spares the publisher from tedious investigation of the radical change in industry.

Yarns Ahead of Achievement

Scientific achievement has not kept pace with the advance notices, but it would occasion no great surprise if any one of the engineering feats recited above were to become actuality. Surfeited as the citizen of the United States is with miracles, he takes to writing words crosswise and up and down to escape from the task of trying to understand the mastery of man over natural forces; to avoid knowing what new harness has been fitted to universal principles.

To the average of us Flettner and his sailless ship simply means that somehow revolving upright cylinders cause a vessel to move through the water. Radio means that if you turn the dial too far you will get WEAR instead of SHRLDU. Hydro-electric power means that congress will not let Henry Ford have Muscle Shoals. And so on. The field is too vast and things that we now think of as our eternal verities are too apt to be obsolete tomorrow. The user can only accept them and let it go at that.

And how rapidly it has come about! Only 25 years ago, in a western city, the writer paid a dime to get into a canvaswalled arena to see a man engineer a steam-powered vehicle up an inclined wooden platform and down again. The man was called a "daredevil."

Now, about 18 million automobiles and trucks congest the highways and streets and are reshaping the basic plan of railway transportation, once considered the utmost in progress along this line.

In view of what has been done, who dares call absurd the visions of the day when inter-continental journeys will be made through the air in ships, maybe not using fuel at all but driven by energy transmitted through the air. Or that any of the countless other changes which now are looked upon as idle fancies will not be, within the span of a few years, workable, everyday practice.

Of immediate and direct application to the petroleum industry is a realization of what is being done and what is being attempted in supplying energy to meet the needs of the world. The president has served notice that something called "waste" is occurring in the production and utilization of petroleum and that proper consideration of our children calls for greater economy, if it is expedient to effect such economy.

The suggestion comes naturally to mind that other sources of power may be in the immediate offing that would reduce the requirements for petroleum to that for lubricating only. In such case present dependence upon petroleum would be out-dated as was the congressional attempt, sometime before the Civil War, to introduce camels on the

Great American Desert. Or the conservation of oil might find its parallel in the action of the navy many years ago in getting set aside a tract of oak timber land to build its battleships.

Before the timber was required the Merrimac, armor-plated, put the wooden battleship into the realm of interesting relics.

Plans Based on Knowledge

Such conjectures comes to mind readily, but industry is planned and financed upon the basis of what we know and not what we dream may come to pass. Whether, a century hence the world will be doing its work with power from the tides of the sea or the movement of the wind or what not, the only basis upon which the needs of the future can now be charted is from what we now know and that is the steadily growing utilization of some form of fuel or the development of water power resources.

Sailless ships, carburetorless autos, engineless airplanes, perpetual motion or any of the other devices, contraptions or hootenannies that are consistently printed alongside the information that France has again repudiated her debts and Trotzky has again been assassinated, are not now operating and so far as immediate purpose are concerned never will.

Therefore being men who live in a world of actuality and exist by virtue of what will happen day after tomorrow rather than in the year 2025, engineers, executives and government officials, in making this move to conserve oil, are thinking in terms of today's forms of power and projecting the needs for that same form of power into the future as far as present knowledge of use permits.

A religious sect recently heard from their prophetess that the world will cease to be on Feb. 6, 1925. Many of them thereupon went out and sold their property. If the prediction is wrong, they will need the chattels and real estate. If the prophetess turns out to have predicted truly, it wouldn't hurt to be caught with the worldly goods. The same is true of fuel resources, including petroleum.

Economy Will Not Hurt

The government view, which is shared by quite a few people not in government service, is that if we burn up uneconomically or use unnecessarily our petroleum, we shall feel it if nothing comes along to take its place. If something does, then we shall merely be caught with it. And for practical, soberminded purposes, there is nothing right now to take its place.

It doesn't really matter what the reserves are estimated to be. Whether we apply all we know about potential oil producing territory to our estimates and say there remains 11 years' supply, or 25 or any other number of years, isn't important in consideration of the main point which is that whatever amount of oil remains in the ground is being exhausted and the requirements are increasing.

It required something like 41 years to produce the first billion barrels of oil; the latest billion barrels were brought out in about one and one-half years, that is speaking for the United States alone. And of this latest billion, which was the seventh, there is a half billion left in storage.

The official view of the whole proceeding seems to be about this: The most attention has been given to finding new areas where oil could be brought to the surface cheaply and to dispose of the oil in ways that might be served in some other manner—to burn up the oil to get money to find more. In one breath the public is informed that the reserves are rapidly dwindling and in the next that when a field is found, only 20 per cent of the oil, more or less, is taken out. Which leads the public, through its representatives, to remark, "That other 80 per cent is a reserve, why not get that?"

How Shall we do It?

As to the manner in which oil will be conserved, how production can be restricted and utilization confined to channels that cannot be filled by anything except oil—those are questions with which this article passes over for the moment. The immediate purpose is to discuss, in a general way, the power requirements of the present and what is being done to supply them.

Such discussion, in the light of present endeavor, brings to the fore besides oil, such subjects as oil shale, coal and hydro-electric resources. It is to be remembered that progress is being made in fields other than oil; that while operators, engineers, geologists and chemists have been bettering the methods of finding, producing, refining and utilizing oil, the coal men, who have lost some ground to the oil industry within the past few years, are attempting to recapture the lost position and electrical men are trying to gain something at the expense of both.

The oil shale men have not become competitors, but they are working to that end and are able to show some progress.

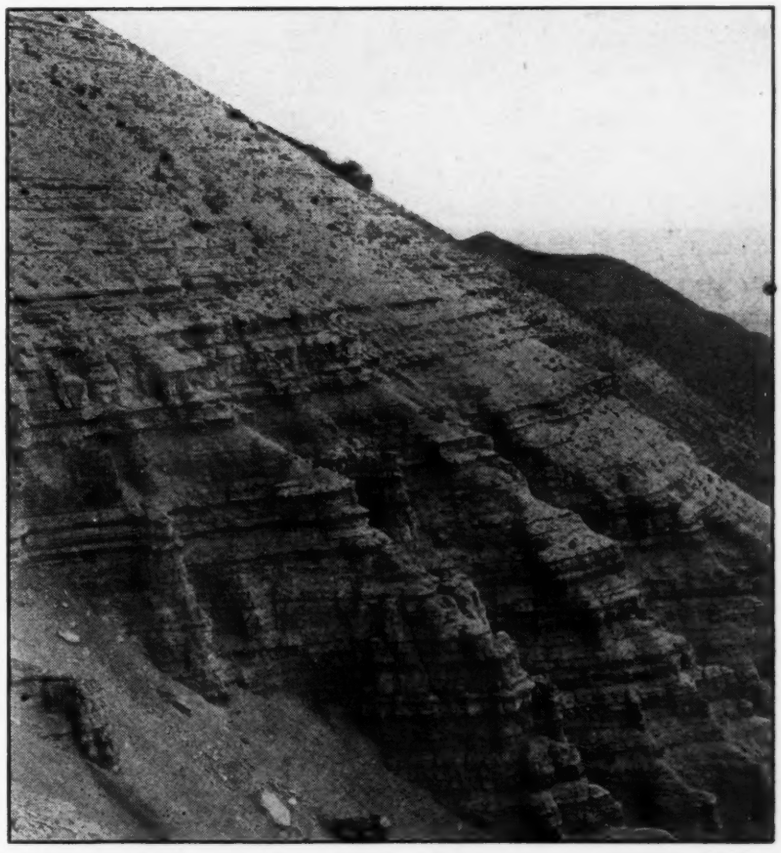
Just as it is not possible to foretell what will be the form of energy used a quarter century hence, it is likewise not possible to estimate how much energy will be required. This figures as of the present are rather startling. These were presented by Fred R. Low, of New York, president in 1924 of the American Society of Mechanical Engineers in an address in December before that society.

Horsepower Requirements

The figures given are credited by Mr. Low to a joint survey made by "Power" and "Electrical World," and are for the United States alone. They are:

Class	Horse-power
Central stations and industrial	45,000,000
Electric railways	4,119,000
Mining (Jan. 1920)	5,147,000
Stationary, non-industrial	4,000,000
Steam railways	130,000,000
Navigation	16,000,000
Agricultural and traction	200,000,000
Automotive	300,000,000
	704,266,000

(Continued on page 31)



Here is a future source of fuel. This is a kerogen shale exposure near DeBeque, Colo. Billions of barrels of oil can be recovered from shales, but not at costs comparable to those which cover production of oil from wells

Station No. 2 of The Superior Gasoline Company, Tulsa, Oklahoma

AT TULSA, OKLAHOMA—

GASOLINE—
Uniform, clean and spunky.
KEROSENE—
Pure, sweet and water white.
Motor and Tractor Oils
Steam Cylinder Oils
Engine and Dynamo Oils
Refrigerating Oils
Diesel Oils
Turbine Oils
Neutrals
Bright Stocks
Cylinder Stocks
Fuel Oils
Wax
Grease

Lubrication for every purpose

are three stations of the *Superior Gasoline Company*, which together sold 500,000 gallons of gasoline last year. One half million gallons! And don't forget that it's a man-sized job to sell gasoline in Tulsa.

Mr. Brownlee and Mr. Carlin have found a way to meet competition, though. They sell on a quality basis. Their slogan reads "The Quality is the Thing." *Marathon* stands for quality! That explains why they sell *Marathon* products exclusively. And their success is further proof that dealers who handle *Marathon* products are kept busy.

TRANSCONTINENTAL OIL COMPANY

Executive Offices:
Benedum-Trees Building, Pittsburgh, Pa.

Sales Offices:
Atlanta, Chicago, Des Moines, Fort Worth, Muskogee, Okla., New York, Pittsburgh, Sioux City and Tulsa

Refineries:
Boynton, Bristow, Fort Worth

Warehouses at convenient shipping points

(Continued from page 29)

Discussing the figures, Mr. Low said that if the figures are correct, there is installed for each unit of our population, prime mover capacity capable of generating about 7 horse power. All this is not utilized constantly, of course, as for example the automotive capacity, which in general is utilized only a small percentage of the time.

Developing further the thought that the outlook is for a dependence upon fuel, we quote Mr. Low:

"Assuming a very low use factor (of the installed prime mover capacity) it is evident that the 55,000,000 potential water horsepower of the United States would be vastly inadequate for our present demands.

"Returns show that the electric public utilities alone will produce this year (1924) 80,000,000,000 horsepower hours. Data available indicate that the rate of electrical production by central stations is increasing at the rate of about 10 per cent yearly. If this rate of increase continues that long, they will have doubled their production in a little over 7 years.

"We are, then, mainly dependent for our power and shall be unless and until some other source is discovered, upon our fuel supply."

No Immediate Menace

In considering any of the acts of the federal administration regarding the national fuel requirements, it must be borne in mind that it does not consider that an emergency exists. It is not a case where existence is threatened because of a lack of petroleum. Notwithstanding that advances in prices since the first of this year will encourage more development, no one fears a shortage of oil this year or next or perhaps even the next.

The oil reserves of the tropics will take up whatever slack there might be in our domestic production, assuming that it does not continue to increase. The long view is being taken of the matter by the administration, apparently, and the attempt is being made to hold petroleum to the uses which nothing else we now have will serve.

Much has been said on the subject of what would happen if the oil resources of this nation and others that American producers might draw upon, were to be inadequate to our needs. Such discussion has usually concluded with everyone in a happy frame of mind induced by a contemplation of the enormous oil shale reserves.

The fact that nowhere in the world has the oil shale industry been established permanently in competition with well oil has not daunted the optimists. They have rested upon the premise that when the day of need arrives, American ingenuity will find the way.

Perhaps it will. But, again basing its views upon the present known facts, the administration is not of the belief that development of oil shale resources could be effected in rapid manner nor, in the event of a shortage of oil, could an oil shale industry meet the emergency. (It is probably unwise to use the word "shortage," as the user is generally stoned from the city and forced to take up his residence in the desert.)

What is Truth about Shale?

Unquestionably, the resources of oil shale are great. Not only in California, and the states of the Rocky Mountain region, but in several states east of the Mississippi River, including Indiana, Kentucky, West Virginia and Pennsylvania there are extensive spreads of sedimentary formation containing the "makings" of oil fuel.

The prevalent misconception regarding oil shale is due to the activities of companies formed to sell stock. They operated in all sections of the country a few years ago, but their ranks have been depleted until there is now left chiefly the men who are experimenting in a serious way and with no especial concern as to immediate reward. The whole oil shale industry can still be considered as in the experimental stage, with a few instances where oil has been produced on a small scale and marketed locally.

One of the misconceptions the writer has found still existing as to the character of oil shale is in the very nature of it. There is a pronounced belief that petroleum can be extracted from the shales in the same manner that residual oil can be extracted from sandstone, as in the case of the "tar sands" of the Athabasca region of Canada, of the minded oil sands of the Pechhelbronn region in France, that is by leaching. Winchester* says:

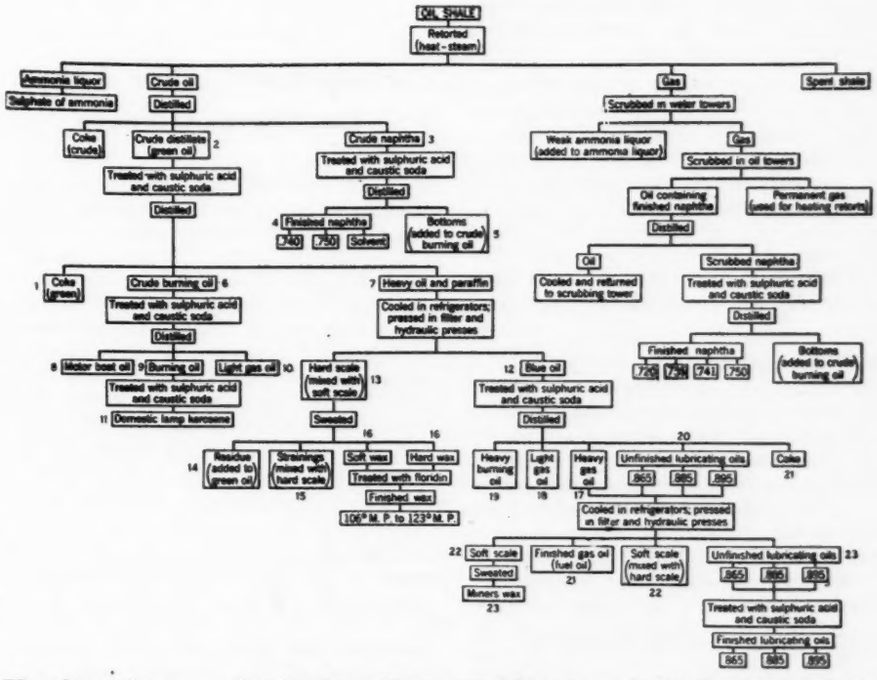
"Oil shale.....does not contain oil that may be extracted by mechanical means, but contains an abundance of partly bituminized organic matter that can be converted into oil by heating. Preliminary studies of the subject indicate that only certain types of organic material are capable of yielding when heated, liquid oil lighter than water; others when heated in the same manner give heavy tar products many of which are heavier than water.

"Even the richest of the American oil shales show only a very small amount of free oil when subjected to the action of the ordinary solvents of hydrocarbon substances, but when these shales are heated oils very similar to petroleum are produced and driven off in the form of vapors, which may be condensed into liquid shale oil."

Investigators Still at Work

The possibilities of the development have been somewhat more than indicated and the literature on the subject is quite voluminous. A few of the early investigators are still active, Dr. David T. Day and Dr. R. M. Catlin being among them. Dr. Day has a plant in California which is reported to be of a commercial scale, but operating on a somewhat different type of shales than is generally meant in a consideration of the subject. Most of the oil extracted from them is really oil and can be extracted by proper solvents. Dr. Day's experiments will, however, add much to the knowledge of oil shale refining, as he has a number of factors to contend with that are common to the extraction of oil from what are commonly known

*Winchester, Dean E., Oil Shale of the Rocky Mountain Region, Bull. 729, U. S. Geological Survey, 1923.


OIL SHALE
Retorted (heat - steam)
Ammonia liquor
Sulphate of ammonia
Crude oil
Distilled
Gas
Spent shale
Scrubbed in water towers
Coke (crude)
Crude distillate (green oil) 2
Crude naphtha 3
Weak ammonia liquor (added to ammonia liquor)
Gas
Scrubbed in oil towers
Treated with sulphuric acid and caustic soda
Treated with sulphuric acid and caustic soda
Distilled
Oil containing finished naphtha
Permanent gas (used for heating retorts)
Distilled
4 Finished naphtha 740 750 Solvent
Bottoms (added to crude) burning oil 5
Oil
Scrubbed naphtha
Coke (green) 1
Crude burning oil 6
7 Heavy oil and paraffin
Cooled and returned to scrubbing tower
Treated with sulphuric acid and caustic soda
Treated with sulphuric acid and caustic soda
Cooled in refrigerators; pressed in filter and hydraulic presses
Distilled
Distilled
Finished naphtha 720 730 741 750
Bottoms (added to crude) burning oil
8 Motor boat oil
9 Burning oil
Light gas oil 10
Hard scale (mixed with soft scale) 13
12 Blue oil
Treated with sulphuric acid and caustic soda
Treated with sulphuric acid and caustic soda
11 Domestic lamp kerosene
Sweated
Distilled
16
16
20
14 Residue (added to green oil)
Strainings (mixed with hard scale) 15
Soft wax
Hard wax
Treated with flordin
Finished wax
106° M. P. to 123° M. P.
Heavy burning oil 19
Light gas oil 18
Heavy gas oil 17
Unfinished lubricating oils 865 885 895
Coke 21
Cooled in refrigerators; pressed in filter and hydraulic presses
22 Soft scale
Sweated
Miners wax 23
Finished gas oil (fuel oil) 21
Soft scale (mixed with hard scale) 22
Unfinished lubricating oils 865 885 895 23
Treated with sulphuric acid and caustic soda
Finished lubricating oils 865 885 895

The above shows graphically the ordinary procedure at a shale-oil refinery. It is taken from Bureau of Mines Bulletin 210, by Martin J. Gavin. It is reproduced here to indicate the complexity of this industry and to show what is involved in getting a supply of fuel from kerogen shales. The diagram here is descriptive of a Scottish plant

as the kerogen shales, or those which contain substances requiring a different method of refining than does crude petroleum.

Dr. Catlin, who once remarked that he knew there was money in the oil shale industry because he had put so much into it, has a plant at Elko, Nevada, which has produced and sold locally fuel from shales. The plant is not in continuous operation but comes nearer to that stage than any other kerogen shale plant.

One of the interesting things concerning this operation is that lubricating oil has been produced from shale, which was considered by many authorities as impossible.

Concerning this, Dr. Catlin, speaking at the National Oil Shale Conference, held in Sacramento, Cal., last October, said:

"For years I didn't think it could be of value; in fact I think the Bureau of Mines is on record as saying that shale oil does not yield lubricating oil. My chauffeur would not put it in my car as he said it was thin like kerosene.

Had No Faith in It

"I looked at it and didn't have much faith in it, as it didn't look viscous enough for lubricating oil, for though I have been writing specifications for oil for 40 years, I had followed the viscosity specifications in common use and it never dawned on me until late years that at the temperature of combustion in engine cylinders all oils have nearly the same viscosity and therefore viscosity alone is probably of no greater importance than color."

Data on tests which are reported to have been made with oil shale lubricants are not revealed. The foregoing is cited simply to show the trend of thought among the oil shale men.

As the matter now stands, oil shale fuel is not immediately available, but that it must be taken into account in considerations of future sources of power is unquestioned. The work has long since passed the state where that was a question. So far as can be determined, however, a much higher price must prevail than now does before oil from kerogen shales will be utilized in large quantity.

While the Anglo-Persian Oil Co. is operating oil shale plants in Scotland, it is said that the operation is only by virtue of realization of profits from by-products, such as sulphate of ammonia, rather than from the oil obtained. Even with the large expense attached to transporing oil to Australia, the oil shale industry there, once quite important, has languished since the over-production of crude oil in California sought a market.

Shale Reserves Enormous

Quantitative surveys of oil shale resources in this country have been made and the Rocky Mountain resources alone have been estimated at 50 to 200 billion barrels, the smaller figure, I believe, being that given by Winchester. Shales are by no means uniform as to products recoverable and those east of the Mississippi river are, in general, "leaner" than those west. From the standpoint of time when shales will be utilized, men who are interested in reserves east of the Mississippi believe these will come into importance first, because of their availability to important markets. Opposed to this is the view of men interested in the Rocky Mountain region who contend the increased yield will offset the distance to consumer.

The federal government is awake to the possibilities and there is now sought an appropriation of $90,000 which the Bureau of Mines would use in erecting a small experimental plant. The bureau has kept in close contact with the work of engineers and chemists and has had a co-operative agreement with the state of Colorado. Under this arrangement a laboratory has been maintained at the University of Colorado, Boulder.

As to cost of producing oil from kerogen shales, there are as many varieties as there are opinions as to what will be the future source of power and attempt to strike an average down through the middle of the statements generally ends in an outburst of hysterical sobbing.

So many different methods of cost accounting have been used and conditions differ so greatly in one locality and another that he is a fearless individual, indeed, who will say at what price of oil the shale product will become a factor.

The presence of great oil shale reserves does not, at this time, invalidate the federal government's view that crude petroleum should be utilized in the channels which it is peculiarly fitted to serve.

Cooperative Pipe Line Co. Elects Officers

FORT WORTH, Jan. 31.—The Wichita Pipe Line Co., co-operative organization of Independent refiners and producers of the Wichita Falls district, elected officers this week. Roy B. Jones was elected president, Walter M. Priddy, L. V. Hull, vice president and general manager, P. F. Gwynne secretary and treasurer and A. W. Eichelberger, assistant secretary and treasurer. Directors are: D. O. Johnson, Bert Shaw, W. F. Davis, P. F. Gwynn, W. M. Priddy, Roy B. Jones, A. H. Berryman, W. W. Silk, and L. V. Hull.

This company was organized in February, 1923, primarily to give production in the then new South Archer fields an outlet. During the first year the company has grown until it now has 115 miles of line, covering practically every field in Archer and Wichita county, with terminals in Electra, and the refining district at Wichita Falls.

A. I. M. M. E. to Give Program on Oil

NEW YORK, Jan. 31.—The 131st meeting of the American Institute of Mining and Metallurgical Engineers will be held in New York City Feb. 16-19.

The petroleum division of the Institute has arranged a program similar to those of the past several years, constituting a review of the past year and a discussion of the outlook for the coming year. This program is as follows:

Tuesday, Feb. 17

10 a. m.

Northern Appalachian Fields, Meredith E. Johnson.
Southern Appalachian Fields, David B. Reger.
Ohio, J. A. Bownocker.
Kentucky, C. J. Norwood.
Tennessee, Wilbur A. Nelson.
Indiana, W. N. Logan.
Illinois, G. F. Moulton.
Northern Arkansas and Northern Louisiana, Malcolm E. Wilson.
Texas-Louisiana Coastal Plain, David Donoghue.
Texas Outside the Gulf Coastal Plain, F. H. Lahee.
Oklahoma, R. S. McFarland.
Kansas, Everett Carpenter.
Montana, Max Bauer.
Wyoming, E. L. Estabrook.

2 p. m.

Colorado, C. H. Wegemann.
New Mexico, Dean Winchester.
California, R. R. Templeton.
Mexico, V. R. Garfias.
Venezuela, Edwin B. Hopkins.
Peru, V. F. Marsters.
Columbia, L. G. Huntley.
France and the French Colonies, P. Martigan.
Roumania and Poland, Henry C. Morris.
Canada, George S. Hume.
Tunisia, George W. Baekeland.
Russia, A. Beeby Thompson.

Wednesday, Feb. 18

10 a. m.

Determining the Constants of Oil Production Decline Curves, Harry M. Roeser.
Comparative Study of Well Logs on the Mexia Type Structure, F. H. Lahee.
Oil Geology of Northern Venezuela, A. Hamilton Garner.
Exploration for Petroleum in the Limagne, France, A. Werenfels.
Note on the Ratio of Peak Production to Certain Fields, G. B. Richardson.
Retractibility as Influenced by the Size of Grain.

2 p. m.

Joint Meeting Coal and Petroleum
What Shall be Done with Oil and Gas Wells to Safeguard Mining Operations, A. W. Hesse.

3 p. m.

Increasing Production of Petroleum by Increasing Diameter of Wells, Lester C. Uren.
Significance of Fluid Level in Oil Well Pumping, Lester C. Uren.

Rapid Rise of Crude Absorbing Topic; Other News Secondary

By A. F. Hinton
N. P. N. STAFF WRITER

TULSA, Jan. 31.

CRUDE oil has been going up so fast and in so many different parts of the country during the past week that ordinary developments connected with so prosaic a subject as production have been shoved almost completely into the background. Almost any oil man would rather read about an advance in the price of crude than about a new well somewhere, no matter how big, but, having written to the limit of our ability on the crude raises elsewhere in this issue, we must turn reluctantly to the more ordinary and routine chronicle of the week's happenings.

Before passing on to that phase of our job, however, let us try to paint for our readers in other places a picture of Tulsa as she is when oil has gone up, is going up, and is liable to go up some more. Tulsa is so saturated with oil that conditions in the industry reflect themselves throughout its entire body of citizens; every line of business, no matter how tenuous its apparent connection with petroleum, hangs its head in gloom when oil is going down, and throws its hat into the air with glee when oil is going up.

Imagine a man who has known better days, who, working to support a large family, finds himself come upon hard times. He owes money that he cannot pay and endeavors vainly to collect money due him. He tries to hold his head up and keep up appearances while his trousers begin to bag at the knees and his coat begins to get threadbare at the elbows. He has ideas and plans, but can get nobody interested in either. Then, suddenly, a fortune is thrust into his hands, followed by another before he has had time to regain his equilibrium, and with it comes the promise that more is to follow. Simultaneously, those who had derided him started patting him on the back and beg him to accept their money to go into the fruition of his schemes. He pays his debts, buys some new clothes, and starts out after more business with a glitter in his eye and a snap in his stride. There you have Tulsa before and after an advance in the price of Mid-Continent crude.

When Fortune Smiles

A raise in the price of crude oil is worth screaming headlines clear across the front page of any Tulsa newspaper, and each succeeding advance is heralded to the citizenry in extra editions, hawked through the town by newsboys whose voices grow in volume as crude mounts the scale of rising value. A carnival spirit seems to seize the city, bringing with it an epidemic of broad smiles. The spirit of optimism, which many had laid away in moth balls for the time being, is brought out, dusted off, and proudly displayed. Blue prints, each bearing the contours of a perfect structure, blossom out as if by magic in the pockets of rushing oil men who only have to sell one more offset before starting to build the derrick.

The groups waiting an audience before the august head of the land department increase momentarily in numbers and enthusiasm. Oil companies start taking on new men to bring their depleted organizations back to a more prosperous status. The geologist gets his plane table out of the corner, shines up his alidade, and hies himself forth to see whathe can find. The automobile dealer sends in a rush order to meet the demand he knows is coming. The realtor gets a fresh set of blue prints and goes out with renewed hope. In short—oil's going up, and all's well with the world. At least, that goes for the producer. As to how the refiner feels about it, we must refer the reader to somebody who knows more about that particular breed of men than we do.

Getting back to earth after that outburst of descriptive effort, be it recorded that Oklahoma's crude oil production declined somewhat during the past week, and would have declined much more had it not been for an unexpected spurt on the part of Cromwell, which reversed itself after many weeks of decline, and jumped its production nearly 5000 barrels. This was enough almost to offset declines recorded by other fields, so that the state as a whole dropped only 1130 barrels to a daily average of 482,965 barrels daily.

Cromwell added nine new wells during the week, bringing its total to 256, and these new wells, most of which were in the north end now getting the "big play," were large enough to cause the field's average to jump from 31,390 barrels to 36,240 barrels daily. Papoose, which for several weeks has been steadily forging ahead in production, dropped off 1440 barrels the past week, averaging 38,160 barrels daily. This field now has 91 producing wells, a gain of two over the preceding week.

Burbank added one well, for a new total of 1668, and declined 690 barrels in production, averaging 58,300 barrels daily. This field apparently has settled down for the long pull, so that its decline will be at a very slow rate from this time on. The Osage county side of Burbank is making 46,400 barrels from 1473 wells, while the Kay county side produces 11,900 barrels, from 195 wells. Wewoka, with one new well bringing its total to 104, increased its output 700 barrels to a daily average of 11,915 barrels.

Tonkawa reported eight new wells, making 745 in all, of which 78 are in the deep sand. The field dropped back from its high figure of last week, losing 3080 barrels and averaging 97,270 barrels daily during the past week. The 667 shallow wells in the field produced 20,080 barrels a day. The 78 deep wells averaged 77,188 barrels daily, as compared with 80,261 barrels last week. From nine to 12 of these wells was off production each day during the week, on account of water and other troubles.

Performance of the Tonkawa deep sand wells by days during the week was as follows:

	Production	No. Wells	Av. per Well
Jan. 24	82,859	78	1,060
Jan. 25	82,062	78	1,050
Jan. 26	74,710	78	957
Jan. 27	76,919	78	984
Jan. 28	74,094	78	950
Jan. 29	74,659	78	957
Jan. 30	75,012	78	962

Thus the average per well for the Tonkawa deep sand has dropped below 1000 barrels for the first time since the discovery of that prolific horizon.

Other production changes during the past week included the addition of one well for a total of 11 in the Watchorn field of western Pawnee county, and an increase in production of 987 to a daily average of 8415 barrels. The Braman pool, northwest of Tonkawa, in Kay county, gained 540 barrels to a daily average of 2,640 barrels, from seven wells, the same as last week.

Wells Completed

In Oklahoma, during the week just closed, 89 wells were reported as completed, of which 47 were oil wells, nine were gas wells, and 33 were dry holes. The dry holes include a number reported from far western counties in Oklahoma as a result of a check-up of recent developments in that area, and many of them have been actually completed for some time, although not hitherto reported. This week's reports compares with 68 completions last week, divided 38 oil wells, four gas wells, and 26 dry holes.

The 47 oil wells included in this week's report had a total initial production of 25,475 barrels, giving them the

high average per well of 542.0 barrels. Last week, 28 wells brought in 18,932 barrels of new production, with a per-well average of 498.2 barrels.

Completions reported from Kansas this week were only nine in number, of which three were oil wells, and six were dry holes, with no gas wells. Last week there were 17 Kansas completions, divided six oil wells, one gas well, and 10 dry holes. This week's three oil wells had a total initial output of 1320 barrels, an average of 440 barrels per well. Last week, six wells brought in 2091 barrels of new production, with a per well average of 348.5 barrels.

Papoose operators found much to encourage them the past week in the showing made by the Amerada Petroleum Corp., Gircrease Oil Co. No. 1 Harjo, in the SWc of 36-10-9, east of production in the field. This well had given indications of being off structure, or too far down structure, as it showed up very low while being drilled, and was looked upon as another probable failure which would mark another point on the east edge of the field. Instead of being a failure, however, it started off flowing 25 barrels an hour when drilled into the sand, and looks like a real well. It got the Papoose sand at 3349 feet, had a show of gas to 3359, where it went into the big pay and has been drilled to 3362 feet. It is making 10 million feet of gas and produced 427 barrels the first 17 hours after drilling in.

In this field, Independent Oil & Gas Co. No. 3 S. Alexander, in the SEc NE¼ NE¼ of 2-9-9, on the Hughes county side of the line, topped the sand at 3343 feet and is drilling at 3353 feet. It is making 25 million feet of gas and spraying about four barrels of oil an hour. The Prairie Oil & Gas Co. No. 1 Davis, in the SEc SW¼ of 34-10-9, got the big pay at 3315 after having drilled through broken sand from 3279 feet, and at six feet in, is flowing 45 barrels an hour.

Almost before anybody had had time to get the new crude prices fixed thoroughly in his mind, and while the proletariat was still ruminating over the action taken by the big crude buyers in adding an extra grade of high-gravity crude to their schedules, the Prairie Oil & Gas Co. again stepped in to the center of the stage and added another ray of sunshine to the producer's life and

Completions in Oklahoma and Kansas Week Ending January 31

OKLAHOMA

Beaver County

Company	Well No.	Location	Depth	Initial Production
Gates Valley	1	NEc SE 33-5N-28E	T.D.3200	Dry

Blaine County

Company	Well No.	Location	Depth	Initial Production
Thompson	1	C SE SE SE 26-15N-12W	T.D.3213	Dry

Carter County

Company	Well No.	Location	Depth	Initial Production
Tidal		C SE SW NE 28-1S-3W	3360–3372 OWD	75
Twin State	1	C NW NW SW 27-1S-3W	3342–3358	350
Magnolia	1	C SE SE SE 39-1S-3W	3507–3518	5
Healdton	2	C NE NE SE 6-3S-2W	2804–2831	145

Cimmarron County

Company	Well No.	Location	Depth	Initial Production
Beaver	1	NEc SE 16-1N-7E	T.D. 400	Dry
Campbell-Riley	1	SEc 2-5N-5E	T.D.1150	Dry

Creek County

Company	Well No.	Location	Depth	Initial Production
Noble	1	SWc NE SW 7-14N-7E	4065–4155	45
U. S. Oil	1	SWc SE NW 13-19N-8E	2360–2373	4M
Gypsy	6	NEc NE NE 1-18N-11E	1743–1748 OWD	3M
Hartman & Sons	1	NWc NE SW SW 17-16N-12E	T.D.2580	Dry
Phillips	6	NEc NW SW 4-15N-9E	T.D.2885	Dry
Turman-Atlantic	1	CEL W½ SE 17-15-9E	T.D.3722	Dry

Ellis County

Company	Well No.	Location	Depth	Initial Production
Chicago-Okla	1	C SW 22-20N-24W	T.D.2500	Dry
Gage	1	NEc SW 20-21N-24W	T.D.1300	Dry
Utility	1	CWL NW SE 10-21-24W	T.D.1469 OWD	Dry

Garfield—Garber

Company	Well No.	Location	Depth	Initial Production
Sinclair	17	NEc SE NE NE 13-22N-4W	1405–1425	50
Sinclair	7	C SE SW NW 18-22-3W	1523–1542	36
Sinclair	13	C NE NW NE 19-22-3W	1225–2145	50
Sinclair	10	C NW NW NE 30-22-3W	2099–2120	30
Sinclair	8	SWc SE SW NW 31-22-3W	2156–2167	40
Roxana	5	SWc SE SW 18-22-3W	T.D.2020	Dry

Grady County

Company	Well No.	Location	Depth	Initial Production
Carter	1	C NE SW 2-4N-8W	T.D.1365	30M

Grant County

Company	Well No.	Location	Depth	Initial Production
Phillips	1	NEc SE NW 29-29N-4W	T.D.4667	Dry

Hughes County—Papoose

Company	Well No.	Location	Depth	Initial Production
Independent	3	C NE NW NE 2-9N-9E	3341–3349	1390
Independent	4	C SE NW NE 2-9-9E	3330–3342	500
T. B. Slick	2	C NE NW NE 3-9-9E	3308–3332	1200
T. B. Slick	3	C SW NE NE 3-9-9E	3335–3359	1115
T. B. Slick	2	C NW SE NE 3-9-9	3310–3336	700
Ark. Natural	3	C NE SE NE 18-9-9	T.D.3215	Dry
Foster Inv	3	C NE NW NE 4-9-9	3292–3323	1626

Kay County

Company	Well No.	Location	Depth	Initial Production
Alcorn	2	NEc NW 12-26N-2W	2528–2534	45M

Kay County—Tonkawa

Company	Well No.	Location	Depth	Initial Production
Comar	18-W	C SW NE NW 34-25-1W	4141–4176	1636
Phillips	4	C NW NE NE 34-25N-1W	4208–4214 OWD	Dry
Comar	5-W	C SW NW SE 35-25-1W	T.D.2525 OWD	Dry

Logan County

Company	Well No.	Location	Depth	Initial Production
Oklahoma	1	SEc SW 36-15N-2W	T.D.1716	Dry

Marshall County

Company	Well No.	Location	Depth	Initial Production
Reese et al	1	NEc NW NE 24-5S-5E	T.D. 727	Dry

Mayes County

Company	Well No.	Location	Depth	Initial Production
Campbell	2	SWc NW NW 26-19N-18E	520– 523	2M

Muskogee County

Company	Well No.	Location	Depth	Initial Production
Hutchinson	1	SEc SW SE NW 35-15N-16E	1705–1727	6M

Noble County—Tonkawa

Company	Well No.	Location	Depth	Initial Production
Comar	3	C SE NW NE 2-24N-1W	T.D.2565 OWD	Dry
Mid-Co	1-A	C NE NE SE 30-24-1W	T.D.1543	Dry
Gypsy	34	C SW NE NW 2-24-1W	4045–4103 OWD	1750
Gypsy	90	C SE SE NW 2-24-1W	4104–4120	1100
Comar	8-W	C NE NE SW 2-24N-1W	4097–4152	1543
Comar	12-W	C NW NE SW 2-24-1W	4173–4198	2849
Comar	11-W	C NW SW NE 2-24-1	4039–4063	1242
Comar	12-W	C SE SW NE 2-24-1	4033–4053	1172
Spencer et al	1	C NE NW NE 4-21N-2W	T.D.1317	Dry
Twin State	1	NWc NE 30-21N-1W	T.D.2484	Dry

Okfuskee County

Company	Well No.	Location	Depth	Initial Production
Atlantic	2	NWc SW SE 36-12N-10E	3010–3030	1200
Wangerine	1	NWc 25-12N-9E	T.D.4106	Dry

Okfuskee—Cromwell

Company	Well No.	Location	Depth	Initial Production
Tidal	2	C NE SW SW SE 14-10-8E	3495–3541	465
Tidal	1	C NW SW SW 14-10-8	T.D.3553 OWD	467

Okmulgee County

Company	Well No.	Location	Depth	Initial Production
Sheldon et al	1	NWc SW NE 34-16N-12E	2167–2187	600
Vise et al	1	CNL SE NE 3-15N-11E	1817–1838	20
Morton	1	NEc SE NW 7-12N-12E	2643–2661	240
Sheldon	1	NEc NE NE 22-15N-11E	T.D.2865	Dry
Calvin-Smith	5	NEc SE SE 5-12-12E	T.D.3231 OWD	Dry
Grubbs	5	CSL SE NW SW 22-15N-14E	1610–1661	60

Osage County

Company	Well No.	Location	Depth	Initial Production
Sherich et al	2	SE SW 28-21N-10E	1898–1907	21
Fidelity	7	NWc SW NW NE 16-21-12E	1308–1358	35
Grimes et al	2	SWc SE SW 30-21-12	1905–1958	75
Tidal Osage	3	NEc NW NE NW 31-21-12E	1942–1946	120
Alexander et al	2	NWc 31-24N-9E	2132–2157	8
Texas	8	NEc SE NE NE 29-25N-8E	2676–2687	700
Texas	10	CNL NE 29-25-8	2706–2712	500
Tidal	17	SWc 13-22-10E	T.D.2244	Dry
C. B. Peters	1	SWc SE SW SW 28-24-9E	T.D.2210	Dry
Lawson	9	NWc NE NW NW 28-25-8E	T.D.2382	Dry

Osage—Burbank

Company	Well No.	Location	Depth	Initial Production
Carter	5	SEc NE SE NE 13-27-5	2905–2988	320
Mid-Kansas	8	C NW SE NW 26-27-5	2947–2990	60

Pawnee County

Company	Well No.	Location	Depth	Initial Production
Donahoe et al	1	NWc SE 22-23N-4E	3714–3722	470
Magnolia	4	NEc NE NE 21-20N-6E	2984–3030 OWD	7M
Cosden	9	NWc NW SW 15-20-7E	2644–2663	150
Galvez	6	SEc SE NE 17-20-7E	2652–2679	150
Magnolia	1	C NW SE SE 4-22N-3E	T.D.4232	Dry

Pottawatomie County

Company	Well No.	Location	Depth	Initial Production
Day Oil	1	SEc NE NE NE 9-5N-3E	T.D.4021	Dry

Seminole County—Cromwell

Company	Well No.	Location	Depth	Initial Production
Cosden	9	C SW NW SW 4-10-8E	3392–3432	930
Waite Phillips	1	C SE NE NE 15-10-8	T.D.3600	Dry
Waite Phillips	2	C NW NE NE 15-10-8	T.D. 960	Dry
Waite Phillips	3	C SE NE NE 15-10-8	T.D. 550	Dry

Stephens County

Company	Well No.	Location	Depth	Initial Production
Magnolia	1	SWc SW 14-1S-8W	1585–1593	14M
Lone Star Gas	8	NEc SW NE 30-1S-8W	2401–2405 OWD	100
Lone Star Gas	2	C NW NE NW 14-3S-5W	1265–1280	6M

Tulsa County—Bruner

Company	Well No.	Location	Depth	Initial Production
Thompson-Black	4	SWc SW SW 5-19N-12E	1916–1919	5
S. S. Home	3	CEL SE NW 5-19-12E	2060–2062	90

Tulsa County

Company	Well No.	Location	Depth	Initial Production
Wade et al	3	SEc NE SE NW 1-17-14E	1257–1274	40

Woodward County

Company	Well No.	Location	Depth	Initial Production
Beard	1	NEc NW NE 34-20-20W	T.D.2610	Dry

KANSAS

Cowley County

Company	Well No.	Location	Depth	Initial Production
Carter	1	NWc SE 19-32-3E	2602–2628	800
C. E. Ash	1	NEc 16-30-4E	T.D.3316	Dry

Greenwood County

Company	Well No.	Location	Depth	Initial Production
Skelly	1	SE NW NW 15-23-9E	2327–2380	400
Empire	16	NEc SE 16-23-9E	2320–2388	120
Pryor-Lockhart	2	SWc 13-22-10E	T.D.2180	Dry
Skelly	1	SEc NW 13-22-10	T.D.2286	Dry

Mitchell County

Company	Well No.	Location	Depth	Initial Production
Alcor	1	NEc 10-9-8W	T.D.3605	Dry

Reno County

Company	Well No.	Location	Depth	Initial Production
Hipple et al	1	NWc SE 3-22-6W	T.D.3815	Dry

Sumner County

Company	Well No.	Location	Depth	Initial Production
Brady Bros	1	SWc NE 25-33-2E	T.D.3644	Dry

Drilling Operations in Oklahoma, Kansas and N. Texas Jan. 31

	Jan. 31 — Week Ending					Jan. 24				
	Loc.	Rigs	Drg.	S.D.	Total	Loc.	Rigs	Drg.	S.D.	Total
Oklahoma										
Burbank	1	6	25	...	32	...	13	18	1	32
Other Osage	..	19	41	13	74	5	17	40	16	78
Bristow-Cushing	11	25	85	36	157	12	23	88	35	158
North Oklahoma	7	14	65	62	148	8	14	76	74	172
South Oklahoma	7	12	86	64	169	9	22	91	70	192
Muskogee	..	4	33	26	63	...	5	33	25	63
Okmulgee-Bristow	4	51	91	42	188	3	55	96	33	187
Tonkawa	4	6	46	11	67	4	5	55	11	75
Wewoka-Cromwell	7	38	243	32	320	12	39	234	43	328
Total Oklahoma	42	175	715	286	1218	53	193	731	308	1285
Kansas	56	69	188	177	490	47	68	196	171	482
N. Texas										
Eastland County	...	...	11	9	20	...	...	12	7	19
Stephens County	..	13	32	22	67	...	16	28	22	66
Texas Panhandle	5	2	26	16	49	5	3	26	15	49
Mexia District	..	27	188	36	251	...	41	195	40	276
E. Texas Wildcats	..	9	3	35	47	...	9	3	35	47
W. Texas Wildcats	..	25	67	97	189	...	26	74	85	185
Wichita Falls	..	79	139	59	277	..	76	127	67	270
Total N. Texas	5	155	466	274	900	5	171	465	271	912
Grand Total	103	399	1369	737	2608	105	432	1392	750	2679

20 cents or more to each barrel of Mid-Continent oil it buys. Not only that, but it stuck on still another grade of high-gravity.

The new prices, which became effective Jan. 30, run through six grades, starting at the respectable figure of $1.15, and ending up in a blaze of glory at $1.95 a barrel. These compare with the poverty-stricken prices of 75 cents to $1.25, which prevailed in the Mid-Continent from Sept. 27, 1924, to Jan. 22, 1925, and represent an increase of 70 cents a barrel in eight days' time for those fortunate enough to own production grading 42 gravity or over.

Prices now in effect compare with those immediately preceding them as follows:

	Effective Sept. 27, 1924	Effective Jan. 22, 1925	Effective Jan. 30, 1925
Below 30	$0.75	$1.00	$1.15
30-32.9	0.90	1.15	1.35
33-35.9	1.10	1.35	1.55
36 and over	1.25		
36-38.9		1.50	1.70
39 and over		1.60	
39-41.9			1.85
42 and over			1.95

A day or two before the Prairie's latest price change, the Sinclair Crude Oil Purchasing Co. took matters into its own hands as to high gravity crudes, posting a price of $1.60 for 39 to 41.5 gravity, and $1.85 for 41.6 gravity and above. At that time, the Prairie's top price was $1.60 for all crude of 39 degrees and over. When the Prairie posted its prices of Jan. 30, Sinclair company followed the new prices, but maintained its differential between the two upper grades. Thus the Prairie is paying $1.95 for oil of 42 gravity or over, while Sinclair will pay this price for oil of 41.6 gravity or over. In other words, Sinclair connections can get the same price as those of the Prairie, with oil 0.4 degrees lower in gravity.

The same reason for the action taken by Sinclair was stated by officials of that company to have been caused by keen competition for those high gravity crudes, forcing the company either to offer higher prices or allow the crude to go to competitors. There are not many fields outside of Tonkawa producing crude better than 41.6 gravity, and there has always been a keen demand for it, with Independent refiners offering premiums for all they could get of it.

One peculiar angle of this high-grade crude situation is the fact that the highest grade being produced in Oklahoma is in the Garber field, where the oil runs something like 45 degrees gravity, and where most of the production is owned by the Sinclair Oil & Gas Co. This company, however, does not run its Garber production to its own pipe lines and refineries, but sells it to refiners having lines into the field, chiefly the Champlin Refining Co., of Enid. And it is selling it for $2.40 a barrel, as compared with the Sinclair Crude Oil Purchasing Co.'s highest posted price of $1.95 for oil from fields in which it buys.

The Kay County Gas Co. (Marland) which is the principal buyer of Tonkawa crude, and therefore one of the largest purchasers of high-gravity oil in the state, also met the Prairie prices, but maintained its own high-gravity schedule, which is identical with that of Sinclair, paying $1.85 for oil from 39 to 41.5 gravity and $1.95 for 41.6 and above. This company evidently abandoned its policy of posting prices in odd cents, as the comparison following shows:

Kay County Gas Co.

	Prices Jan. 22	Effective Jan. 30
30 to 32.9	$1.24	$1.40
33 to 35.9	1.43	1.55
36 to 38.9	1.50	1.70
39 to 41.5	1.59	1.85
41.6 and over	1.71	1.95

Since these prices were posted, Champlin Refining Co. and Bolene Refining Co., two Independent buyers of Tonkawa crude, have posted flat prices of $2.00 for this oil. The Prairie runs only a very small amount of crude from Tonkawa, and actually is not a factor in the market price there.

The action of the Prairie in raising crude prices for the second time in eight days was followed by a veritable flood of crude advances from all sections of the country, with the single exception of California. These were accompanied by a corresponding shower of gasoline tankwagon advances, coming almost too fast to keep track of. Altogether, it was a wild week for those whose job it is to broadcast all such price changes to the industry.

The Magnolia Petroleum Co. issued a new set of prices, following those of the Prairie, but posted seven grades, instead of the six in the Prairie list, but its four upper grades are identical with those of the Prairie, both as to price and gravity classification. The Magnolia's schedule begins with crude of under 28 gravity, for which it offers 90 cents; the next grade, 28 to 30.9, is $1.15; and the next, 31 to 32.9, is $1.35. From that point on, it agrees exactly with the Prairie prices.

Other leading crude buyers, such as Cosden, Gulf, and Texas Co., advanced their prices to conform to those of the Prairie. The Empire Pipe Line Co. also announced that its prices were the same as those of the Prairie. The Roxana Petroleum Corp. and the Carter Oil Co., two buying agencies which do not find it convenient to post a price, undoubtedly will have to pay the Prairie scale to retain or to secure connections. Independent refiners immediately began offering premiums over and above the latest posted prices, while some of them posted prices of their own. An instance of this was action taken by the Shaffer Oil & Refining Co., which offers $1.85 for 39 to 40.9, and $1.95 for 41 and above, which is equivalent to a 10-cent premium. The American Refining Co., which runs oil in the Wichita Falls district, and which started the ball rolling by advancing its prices a day or two before the advance became general, also posted new prices of its own, going up to $2.10 for oil of 42 gravity and over.

According to the best information obtainable as to gravities in the various fields and using National Petroleum News estimates of the state's current production, the Prairie's present scale of prices divides up the total output approximately as follows:

Gravity	Production	% of Total	Price	Value
Below 30	32,697	6.8	$1.15	$37,602
30-32.9	48,007	9.9	1.35	64,809
33-35.9	82,780	17.0	1.55	128,309
36-38.9	130,903	27.2	1.70	222,535
39-41.9	79,838	16.5	1.85	147,700
42 and over	108,740	22.6	1.95	212,043
Total	482,965			$812,998

By dividing the value in money by the total production, it is indicated that the weighted average price of Oklahoma crude at present is $1.6833 a barrel. Using the same production figure, and applying it to the Prairie's scale of prices of Jan. 22, when the top grade was $1.60 for oil of 39 and over, gives a weighted average price of $1.4447 a barrel, so that the most recent posting represents a general increase of about 24 cents a barrel.

It is interesting to note the rapid rate at which high-gravity crudes have increased in their relation to the state's total production during the past year. When the Prairie posted its prices of Mar. 8, 1924, placing crude of 39 gravity and over at $2.25 a barrel, the peak for the year, that top grade comprised only 12.71 per cent of the state's output, being 49,755 barrels out of a total of 391,480 barrels. This compares with 39.1 per cent at present.

Pueblo District Test Fails to Find Oil in Dakota Sand

DENVER, Jan. 31

By Special Correspondent

AN INCREASE in production in the Rocky Mountain district averaging 4047 barrels a day for the week, an increase in the posted prices of crude, and an improvement in weather conditions which has speeded up operations were the principal encouraging factors for the week. Crude was advanced in price in the principal fields putting Salt Creek at $1.30; Grass Creek, Elk Basin and Cat Creek at $1.65; Greybull, Torchlight, Osage and Lance Creek at $1.60; and Pilot Butte and Big Muddy at $1.30. Ferris and Hamilton dome crudes take the same price as Salt Creek and Kevin-Sunburst was advanced 7 cents to $1.12.

Drilling operations were mostly of a routine nature with a few exceptions. In Colorado, the Utah Southern Oil Co. found the Dakota sand at 465 feet in its test on the Yellow Banks dome, southeast of Pueblo. The well is located on 25-24-61. The sand was dry down to 590 feet and drilling is to be continued to the Lakota. Midwest Refining, Carter Oil, Mutual Oil, Marine Oil, Marland Oil and other companies have protection acreage on the structure. Its failure in the Dakota is discouraging for the Pueblo district as the Ohio Oil Co. failed to find anything on the east side of the city, the Union Oil Co. of California has abandoned its test of the southwest and several other tests in that area failed to encounter anything worth while. None of these tests have been carried through the red beds as the general supposition is that the red beds rest on the granite in that area.

Better news came from the southwestern corner of the state where the Leidecker Petroleum Co. is drilling on 3-32-12, about 19 miles southwest of Durango, near the New Mexico line, in La Plata county. This well is three fourths of a mile southwest of a test drilled last year by J. A. Leidecker which had several good showings but not in commercial quantities and which was abandoned at 3600 feet. Leidecker was at that time identified with the Julian Petroleum Corp. of Los Angeles and the well was touted far and wide as a producer. However, that company was recently re-organized, control passed out of Julian's hands and Leidecker took over the Colorado properties. Government maps show that the second well is much better located on a terrace structure. The showing of oil and gas commenced in the middle member of the Point Lookout sand in the base of the Mesa Verde at 1540 feet and at 1560 feet the gas was estimated at 200,000 cubic feet a day. The same horizon in the first well did not show any gas. The test is headed for the Dakota.

The Transcontinental Oil Co. is again making new hole on its Beaver Creek test in Routt county on 32-4-89. It found the Dakota sand last fall at 3258 feet which was dry down to 3278 feet when water came in and which continued until the sand was bottomed at 3298 feet. Another water sand was found below the Dakota and operations were suspended until a change could be made from cable to rotary tools. A collapsed joint of casing held up the operation until this week when the sidetracking was finished and the hole is not bottomed at 3533 feet. Officials do not believe that the second sand was the Lakota and will go on down as long as hole lasts. This is the first test below the Dakota formation in that district.

Union Oil Co. of California is installing tankage and making preparations for the completion of its Verstraten No. 1 on the southwest corner of 19-8-68, Fort Collins dome, which is drilling at 3700 feet and has about 700 feet to go. It probably will be the next completion in that field. It is an offset to the Whitaker well, the discovery, which found the sand at 4475 feet and which is producing around 800 barrels a day from between casings. The Whitaker has never been opened up on account of the condition of the hole and it is not known what it would make if turned loose. The Verstraten well will, therefore, furnish some valuable information as to what the wells may be expected to make on the top of the structure.

Mutual Oil Co. found water at 365 feet in its No. 564 on 1-19-69, Brush Hollow dome, north of the Florence field, in Fremont county. It is being cased off and continued on down to the Dakota. This is a structural test in search of the source of the shale oil production in the Florence field.

The Artesia field in Eddy county, New Mexico, is attracting the operators in the mountain states district. Ohio Oil Co. is drilling its Tracey No. 1, on 34-21-26, southwest of production, at 450 feet. T. S. Hogan, of Denver, has started a joint operation with the Standard Oil Co. of California on SE¼ of 8-20-28, six miles south of the Illinois Producers field. Senator Hogan is also getting another under way on SE¼ 34-19-28. He has 7040 acres which he has split with some of the larger operators. Marland Oil Co. is reported entering the fields as are also the Danciger interests and several others.

Several completions in Eddy county have been reported to Denver which extend the area about 5 miles to the east and also about the same distance to the north. The last and most important is that of the Twin Lakes Oil Co. No. 2 on 28-18-28 which is reported as having made 750 barrels a day of 38 gravity oil from a 25-foot sand at 2000 feet and is the largest well so far completed.

Eastern New Mexico is attracting attention all the way up to the Colorado line. Arkansas Fuel Oil Co. is erecting derrick on NE¼ 11-19N-21E, Wagon Mound dome, Mora county. Eureka Oil Association is reported to have a good showing in the second Pennsylvanian sand on 10-29-24, Colfax county and between that location and the Colorado line the Union of California and the Standard of California are drilling tests. On the west side, the Mutual Oil is on top of the sand at 680 feet in its No. 7, on the Rattlesnake dome, Navajo Indian reservation.

In Wyoming, the Midwest Refining Co. found the Lakota sand 65 feet thick in its 33X, Salt Creek field, the third of the 3 tests to the horizons below the Wall Creek. The well is flowing around 3000 barrels of pipe line oil. Sand was topped at 2259 feet and total depth of hole is 2331 feet.

Panhandle Well Flows 2000 Barrels

(By Fast Wire Service)

HOUSTON, Feb. 3.—American Refining Co.'s No. 2 Burnett ranch test in Carson county, Texas, came in Monday flowing about 2000 barrels daily at 2970 to 2978 feet. The well offsets the earlier No. 4 Burnett of The Texas Co. and is flowing from granitic wash found above the 3000-foot lime of earlier wells. The earlier wells also got this upper pay which soon declined after they were deepened.

Completions Rocky Mountain District Week Ending January 24

Company	Well No.	Description	Depth	Production
WYOMING				
Salt Creek				
Midwest Refining	33 X	35-40-79	2331	3000
Midwest Oil	16 A	34-40-79	1850	190
Utah Oil Refining	14 A	30-40-79	2161	Not tested
COLORADO				
Moffat Dome				
Texas-Transcontinental	1 Meyer	9- 4-91	4054	550
NEW MEXICO				
Aztec District				
Home Gas Co.	1 Teague	21-29-11	1061	Dry
Eddy County				
Burgess V. Goodale	1 Calif.	30-18-29	1495	Not tested
Twin Lakes Oil	2	28-18-28	2000	750
Flynn, Welch & Yate	7	32-18-28	2000	200
MONTANA				
Kevin-Sunburst				
Treasure State Oil	2 Anderson	29-35-1W	1500	100

Wortham Soon to Go on Pumping Basis; Other Practices Unsatisfactory

By Paul Wagner
N. P.N. STAFF WRITER

HOUSTON, Feb. 2.—Production in the Wortham field Feb. 1 was 83,516 barrels from 172 wells. This represented a per well per day production of approximately 485 barrels. The showing compared with 163 wells making roundly 75,000 barrels Jan. 31.

* * *

HOUSTON, Jan. 29

FEW wells in the Wortham field are now flowing naturally. Most of the remainder are either being exploited by artificial means, or they are in the transition stage preliminary to their going on the pump. The field, January 28, was making 77,535 barrels from a total of 144 wells completed as producers.

When the loss of field pressure became acute, about 10 days ago, the wells that had been flowing steadily began giving up their output "by heads," preliminary to their going "dead." With the appearance of these signals, the operators began installing artificial means to make them flow.

Powell and Mexia were back of Wortham as precedents and equipment had been brought into the field in advance of the loss of pressure, so that no time might be lost in putting the wells back on production.

Methods of Stimulation

Under conditions of this kind, the first step taken by operators is to "agitate" wells to make them flow. Crudely stated, the principle is that of working tools up and down in the bottom of the hole for the purpose of artificially stimulating pressure by breaking loose the gas in the sand.

When agitation loses its effect through a further dropping off of pressure then swabbing is practiced. The term "swabbing" is applied to a producing method based on a somewhat similar principle to that of the small boy's use of a water gun.

The swab itself is a 2 or 2½ inch pipe with a back pressure valve on the lower end. It is threaded all the way up on the outside with rubber of a size to make it fit snugly the pipe walls of the well.

When being operated, the swab is lowered into the hole, the action of the back pressure valve permits the oil to come up back of the rubber and the fluid is brought to the surface under conditions of partial vacuum.

This brings to the top of the hole oil that otherwise would stand at the fluid level of the wells in the field. The fluid level stands at a given point, which point is variable in different fields, because the pressure in the sand is not great enough to lift the oil, or fluid, beyond this point.

Use of "windjammers" to force oil out of the hole by means of compressed air has the effect of producing greater quantities of fluid than would be possible without the adoption of this method. It is not always practicable, however, depending upon the fluid level in the hole and other factors.

Practices Precede Pumping

All the aforementioned practices precede the pumping of wells in fields where these methods are used. Agitation is frequently resorted to as an artificial means of stimulating production. Swabbing, on the other hand is more apt to be frowned upon by such agencies as the Oil and Gas Division, which branch of the Railroad Commission administers in Texas the state conservation act.

The practice of swabbing tends to create a dangerous pull on the sands that may hasten encroachment of bottom water when present in the pay horizon.

It is reported that the Oil and Gas Division is taking steps to stop the swabbing of wells at Wortham, just as it did at a similar stage in the productive life of the Powell fields.

The use of "windjammers" is not proving successful at Wortham, except in a few instances, and probably this practice soon will be abandoned.

Generally compressed air is used only when the fluid level stands two-thirds of the way up in the hole, which would be approximately 2000 feet at Wortham.

Such a fluid submergence as that made possible by the oil standing two-thirds of the way up in the hole is generally required, according to operators who have studied the effects of air machines, to make the use of "windjammers" satisfactory. The fact that their use gets all the oil out of the hole quickly and there is not enough fluid present in the sand to bring about a rapid filling-up again defeats the effective use of these machines at Wortham.

Absence of appreciable quantities of water with the oil produced from the high parts of the structure makes the situation at Wortham one in which the lack of fluid is a producing factor of greater control than would be the case were brine present in quantity.

Wells down the east-southeast slope of the field show large percentages of water, but the high parts of the structure are as yet relatively unaffected.

It is possible that the use of air machines will prove more successful in parts of the field where the quantity of salt water produced with the oil is the greatest. There, the fluid level should stand higher up in the hole.

The condition working against satisfactory use of air at Wortham has to do with the fact that the fluid level in the field generally stands about 500 to 600 feet off bottom of the hole. Under such a condition pumping methods bring about recoveries equally as large as could be obtained by other means; and pumping is more satisfactory, yields being equal, than other means of production.

How Producing Wells Perform

Conditions in the Wortham field are clearly shown by the record of producing properties, by companies, as of January 28.

Humphreys-Boyd Oil Co.'s eight wells on the Simons lease made 490 barrels together, with Nos. 2 and 4 on the beam 20 hours; A-1 and A-2 Smith were being agitated for combined production of 5410 barrels; B-1 Smith was flowing 2425 barrels; Nos. 1 and 3 Wilson were flowing 3810 barrels under agitation; No. 2 Manning was swabbing 665 barrels; No. 1 Boyd, the "discovery" well of the field, was swabbing and agitating 650 barrels; and Nos. 1, 2, 4 and 6 Ferguson were flowing 3325 barrels with No. 4 on production 15 hours and No. 6 producing 11½ hours.

Gulf Production Co.'s No. 1 Lindley was the best well being produced by compressed air in the field. It was making 780 barrels. No. 2 on the same property was swabbing 560 barrels. Its No. 1 Ferguson was swabbing 230 barrels; No. 1 Simmons was off production; and Nos. 1 to 3 Wilson were producing 1845 barrels together, No. 3 swabbing 142 barrels.

Humble Oil & Refining Co.'s A-1, A-3 and A-4 Crouch were all "dead" and preparations were being made to pump; No. 1 E. C. Crouch was off production; No. 1 Ferguson was making 130 barrels when agitated; Nos. 1, 2, 3 and 8 Dodd (Redus), in the extreme northeastern part of the field, were flowing 8250 barrels steadily; and A-1, A-3 and A-4 Lindley were making 1600 barrels together, with A-4 swabbing; B-1 to B-4 Lindley were to be put on air; No. 2 R. G. Poindexter was flowing 25 barrels daily by heads; Nos. 1 to 4 T. B. Poindexter were flowing 2025 barrels combined production; Nos. 1 to 3 Manning were flowing 475 barrels together; No. 1 H. B. Stubbs was flowing 960 barrels; No. 2 Simmons was flowing 215 barrels; and A-1 J. P. Stubbs was "dead."

The Texas Co., which took over properties previously operated by the Kirby

Petroleum Co., was agitating No. 1 Bounds, which was making 385 barrels; No. 1 Chancellor was flowing 2780 barrels; Nos. 1 to 3 Watson were flowing 2950 barrels; and No. 2 Wright swabbed 80 barrels in five hours.

Atlantic Oil Producing Co. had its No. 1 Edwards on the beam, making 300 barrels in the full 24 hours; Nos. 1 and 2 Hinchcliffe were making 1900 barrels together, No. 2 swabbing; No. 1 Simmons made 8 barrels when pumped two and a half hours; Nos. 1 and 3 McCorkle, owned jointly with R. R. Penn and others, made 680 barrels, No. 1 was on air 10 hours, making 435 barrels, and No. 3 pumped 245 barrels in 24 hours, 25 per cent b.s.

Simms Oil Co.'s four wells on the Calame lease were flowing 4765 barrels together; A-1 to A-3 Calame were all "dead;" No. 2 Hackney was flowing 120 barrels; Nos. 1 to 3 and 6 Manning were making 490 barrels together, all flowing through tubing; Nos. 1 and 2 Rogers were swabbing 1880 barrels together; Nos. 1 to 4 and 7 to 9 Simmons were making 630 barrels together, Nos. 4 and 7 making 100 barrels on air, Nos. 8 and 9 flowing through tubing, Nos. 1 and 3 preparing to pump and No. 2 swabbing; A-1 and A-2 Simmons were both "dead" and were to be swabbed.

E. L. Smith Oil Co.'s two wells on the Beal were making 650 barrels, No. 1 swabbing and No. 3 flowing by heads; No. 1 Edwards was off production and was to be put on air.

No. 1 Bonner of Barclay & Meadows was flowing 2015 barrels; Godley Oil Co.'s No. 1 Manning was "dead" and preparations were being made to pump it; No. 1 Ferguson of the Godley Oil & Gas Co. was being standardized to pump; Stroube & Stroube's No. 1 Lindley was being agitated and was producing 2020 barrels; Sun Oil Co.'s Nos. 1 to 4 Simmons were making 400 barrels, No. 4 swabbing 15 hours.

Ray & Massie had sold their No. 1 Berry well to Cranfill and Reynolds, who were flowing it through tubing at the rate of 260 barrels daily; Carter & Lytle were getting 375 barrels from No. 1 Edwards, flowing through tubing; Cranfill & Reynolds were preparing to pump No. 1 Cashin, which had gone "dead."

Farish, Watts & Collins were swabbing No. 2 McCorkle for 360 barrels and were producing 2785 barrels from Nos. 1 to 4 Jackson. The Jackson wells were being agitated except No. 4, which was "dead."

Rio Bravo Oil Co. had 975 barrels from Nos. 2 and 7 H & T. C. railroad right-of-way, Nos. 1 and 4 being "dead;" Republican Production Co.'s No 1 Allmond was "dead" and being prepared to pump; and its No. 1 Guerner was flowing 2000 barrels by heads.

Oxford Oil Co. was preparing to pump No. 1 Young, which would not flow when completed but which stood 1500 feet of oil in the hole; its No. 1 Morrow was swabbed 185 barrels.

Pure Oil Co.'s Crouch was swabbing 400 barrels; Nos. 1 to 3 Bounds were producing 1020 barrels, No. 1 on the beam 18 hours and making 200 barrels, No. 3 on the beam 18 hours and making 412 barrels.

No. 1 Seals of Ray & Massie was flowing 160 barrels by heads; No. 1 Young of Tarver et al was flowing 550 barrels by heads; No. 1 Patterson of Walsh et al was "dead" and preparations were being made to pump it; No. 1 Smith of Wheelock & Collins was swabbing 515 barrels.

The "Why Not" Oil Co. (Mrs. J. K. Hughes) had 720 barrels from No. 1 Simmons, which was being swabbed; Nos. 2 and 4 on the same property were being standardized to pump. The J. K. Hughes Developing Co., operating Nos. 1 to 7 Crouch, had 1505 barrels; No. 1 was preparing to pump, Nos. 2 and 3 flowing by heads, Nos. 4, 5 and 6 swabbing, and No. 7 flowing through tubing.

All the Boyd wells of the Magnolia Petroleum Co., in the southwestern part of the field were flowing. They were making 6415 barrels together. These included Nos. 2, 3, 4, 6, to 13 and 15.

No. 1 Simmons of Moss & Keeling, which stopped flowing at midnight, produced 420 barrels in 17 hours; their No. 1 Cecelia Moore was flowing 1590 barrels; No. 1 Simmons of Murchison & Fain swabbed 200 barrels in 16 hours.

Tulsa Geologists are Told of New Subsurface Map of NE Okla.

By H. B. Goodrich,
Petroleum Engineer, Tulsa

TULSA, Feb. 2

THE meeting of the Tulsa Geological Society with its President for 1925, Walter Wilson, presiding for the first time, took place the evening of Jan. 24 at the Municipal Auditorium. The ever increasing interest in the society was evidenced by the usual large attendance.

Previous to introducing the speakers of the evening, announcement was made of committee appointed to confer and co-operate with Hon. Dave Logan in the matter of securing appropriation for topographic mapping in Oklahoma. The committee is: H. F. Wright, George C. Matson and L. Murray Neumann.

Dr. W. P. Thom Jr. of the U. S. Geological Survey, in charge of Geology of Fuels, was introduced. Dr. Thom is now in charge of work authorized by an appropriation of $1,500. The work jointly by the Oklahoma Survey and the U. S. Geological Survey, is to be a generalized subsurface mapping of three horizons, the top of the Bartlesville, the Mississippi Lime and the Wilcox Sand.

Dr. Thom described the scope of his labors upon which he has now been engaged actively in Oklahoma for about two weeks and expects to remain until the last of the month. The area covered is the northeast part of Oklahoma and is extended to Garber and Oklahoma city to the west and to the Choctaw fault and the Canadian river to the south. The material used consists of well log records already in possession of the U. S. Geological Survey, supplemented and added to by co-operation of company and independent geologists, who were invited to submit any records with the full understanding that no information is solicited regarding properly confidential matters.

Conferences on matters of correlation of formations and suggestions by geologists are desired, so that Dr. Thom's final conclusion may be substantiated by the best local authorities, and it was stated co-operation and suggestions have been freely offered. The result will be a generalized structure map, not at all in minute detail, with a probable contour interval of 250 feet. Skeleton logs at a few points will be given with the elevation of such points so that geologists may tie into them for detailed work. One or more cross sections will be shown. The map will be on a scale of 1:500,000, the same as that of the geological map now in process of preparation, so that a tracing of the generalized structure map could be superimposed on the map.

The society, appreciating the value of Dr. Thom's proposition, discussed his presentation of it.

Dr. Ed Bloesch asked whether logs of wells reaching granite should not be asked for and used but the speaker responded that the bill of appropriation specifically named the three horizons as the Bartlesville, Mississippi, and the Wilcox Sand, the granite might be contoured but if so would be additional information.

Messrs. Richard Hughes and Luther H. White discussed correlation of formations and matter of cross sections, and the speaker further mentioned methods of correlation when any of these horizons named are missing.

The next speaker was E. F. McIntyre, manager of the Petroleum Exposition. While his subject "Astronomy," was in the nature of an innovation in a geological society meeting, it seemed very timely because of the solar eclipse of January 24 and the natural tendency of all to examine the heavens closely and with especial interest at this time.

He attributed the suggestion of its presentation to James H. Gardner. The gentlemen and ladies of his audience did not admit the necessity for his modesty or that any apology for a very interesting and instructive and masterly lecture was necessary.

Jim Hogg County, Texas, Pool Important Small Scale Development

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, Jan. 30

THE new Jim Hogg county oil field, which has approximately doubled the production of the Laredo district, is located with reference to two high salients that guard the entrance to a deep re-entrant basin.

Conspicuous promontories on either side of the narrow valleys that were formed by erosion along this part of the Reynosa escarpment bring about physical features almost meriting the name of canyons.

A result is that this part of an arid region, normally to be considered plains country, takes on unusual surface feasures even for the scarp-cut Laredo district.

The escarpment that separates the Gulf Coastal Plains from the Interior Coastal Plains in this region is formed by the superior resistance to erosion of the limestone beds in the Reynosa formation along the outcrop of the underlying Frio clays. The perpendicular face of the formation, which is thus exposed, causes this physical feature to be often referred to as the Reynosa escarpment. It is also known by its Spanish name of the "Bordas."

Make a dent in a tin can and the pushing-in movement would form an example of what the geologist describes as a "re-entrant," push out its sides and you will create "salients." Such a physical appearance would not be dis-similar to the result of other and different causes exerting their influence to create the salients and re-entrants along the escarpment in the Jim Hogg county area.

Gasser Points the Way

A first gas well, which last July called attention to oil possibilities of this part of the escarpment region, was located about midway between two high salients guarding such a re-entrant basin as has been described. That well, drilled in block 3, survey 256, on the Holbein ranch, was estimated to have made 53 million cubic feet of gas, with 1200 pounds rock pressure, at its best. Total depth was approximately 1975 feet.

Another gasser, No. 2, in the same block and survey, was completed later for 45 million cubic feet daily by Henne, Winch & Farris, who also owned the original well.

Efforts to obtain oil were then continued, with the result that No. 3 was completed on October 24, 1924, making approximately 3500 barrels, initial production. Oil activity in Jim Hogg county dates from that time.

About 15 producing wells have been completed in the pool, which is situated roughly five miles southeast of the earlier Mirando Valley development of northeastern Zapata county. The first well in the Mirando pool was completed in 1921 and was followed later in the year by other small fields, from 8 to 14 miles northward, in Webb county.

The Jim Hogg county development, which is often referred to as the Henne, Winch & Farris pool, because of these Laredo operators having drilled the original well, had its high mark of production around 7000 barrels; at a time when recent completions were producing at approximately their maximum yields. Now, the pool is good for roundly 5000 barrels.

An accompanying table gives in tabloid a partial history of developments that followed the original completion of Henne, Winch & Farris, who have operated out of Laredo.

More Companies Enter District

Until the more recent entry into the Laredo district of the Plateau Oil Co., in partnership with the Texas Pacific Coal and Oil Co., the Magnolia had been the only one of the larger interests to pay any especial attention to the development of this region. The Magnolia had previously drilled a few wells in the Webb and Zapata county pools, northward along the escarpment from the Jim Hogg county development, and it had been a purchaser of crude fuel in the territory.

The Plateau is now drilling five wells on the Holbein ranch, in partnership with the Texas Pacific. Four of this number are now below 1500 feet and three of them should be completed very quickly. The Plateau is drilling two others in partnership with the Wheat interests, also of Fort Worth, on a part of the Holbein ranch. The No. 2 test of Plateau and Buchanan on the Martinez ranch is a derrick.

Simms Oil Co., drilling its No. 1 Woods, recently got salt water in sand at 2241-2251 feet; and the Alsworth et al interests bailed salt water in No. 1 Holbein, which had a sand from 2044-2058 feet. It was believed possible to work over the Alsworth et al test, however, and make a well of it.

The Killam et al interests, which have been through the series of small pools previously developed in Webb and Zapata counties, are also active in the Jim Hogg development. Two tests being drilled by them on the Holbein ranch are soon to be completed.

Magnolia Petroleum Co. is rigging up No. 3 on the Oscar Thompson ranch after finishing one producing well and drilling another almost down to its completion point.

Bubam et al, whose interests are local to the Laredo district, have one test on the Holbein ranch below 1450 feet; Texo Oil Co. has rig up for its third test on the Martinez; and Claud L. Witherspoon of San Antonio is milling out through casing in his No. 3 Holbein at total depth of 2005 feet.

Witherspoon has operated successfully in the Laredo territory since the inception of the Mirondo development and has been an extensive seller of Mirando crude fuel in tank car shipments.

A lack of drilling water in the territory causes Jim Hogg county wells to be brought in under swabbing practice

Tabloid Data on Jim Hogg County, Texas, Development

Company—Well	Date Comp.	Elev.	Casing Set	Total Depth	Init. Prod.	Jan.15* 1925 Daily Prod.
Henne, Winch & Farris						
Block 3, survey 256, No. 1	6-23-24	629	1943	1975	52m gas	....
Block 3, survey 256, No. 2	8-23-24	635	1978	....	45m gas	....
Block 3, survey 256, No. 3	10-24-24	638	1990	....	2500	....
Block 3, survey 256, No. 4	11-27-24	634	1986	....	1200	....
Block 3, survey 256, No. 5	12-18-24	645	1990	....	600	....
Block 3, survey 256, No. 6	1-30-24	637	1986	....	Small	1200
Texo Oil Co.						
Block 16, survey 255, No. 1	12-17-24	643	1978	1995	600	550
C. L. Witherspoon						
Block 13, survey 26, No. 2	12-17-24	639	2023	....	1800	600
Block 16, survey 26, No. 3	1-23-25	....	1986	2005	1500	**
Magnolia Petroleum Co.						
Oscar Thompson ranch, No. 1	12-16-24	644	2007	2017	500	50
Plateau Oil Co. & Wheat						
Block 14, survey 26, No. 1	1- 7-25	....	....	....	1200	1100
Alsworth Brothers et al.						
Block 38, survey 15, No. 1	1-24-25	....	2043	2058	S.W.	....
Plateau & Texas Pacific Companies						
Block 5, survey 26, No. 1	1-24-25	....	1977	1985	1500	**
Kisselman & St. Albans.						
Block 36, survey 15, No. 1	1-24-25	....	....	2007	Small	**
Buchanan & Plateau						
Martinez 1		....	....	....	Pumper	**
O. W. Killam et al.						
Survey 256, No. 1	1-24-25	....	1996	2001	Pumper	**
Lopez & Martinez						
Killam 1	12- 8-24	....	1977	....	Spray	0

*Completions after January 15, 1924 shown at initial production, or,—
**No report.

in most instances. This method is nearly always required to make them flow. No "gusher" wells of the type that flow naturally over the top of the derrick are ever completed in this territory, nor does the area promise areal extensions to influence the petroleum industry generally

The "spotted" characteristics of Laredo district development are to be found here, as elsewhere along the escarpment, and the remote position of the field from market facilitiies is a factor that will retard operations until large scale possibilities are indicated. It is not on the cards, in the light of present evidence, that such possibilities exist.

Crude from the Jim Hogg county area is dependent upon short pipe line facilities for its outlet, the Texpata Pipe Line Co. serving this field along with the Mirando pool of Zapata county. The price paid for the oil has been 70 cents at the well, but the Texpata recently advanced it 5 cents to 75 cents a barrel.

Completions in North Louisiana and Arkansas Week Ended January 29

LOUISIANA

Spring Hill

Company	Well	Location	Depth	Yield
Atlantic O. & Pr. Co.	Bodcaw No. 2	24-22-12	2535	dry aband.
Belchic & Laskey	Pine Woods Co. No.6	28-23-11	2678	2 m. gas
Butler & McMurray	Wheeler No. 1	35-23-11	2690	50 m. gas

Cotton Valley

Humble O. & R. Co.	Bodcaw B-8	13-21-10	2520	200

Caddo Parish

D. C. Richardson	Bostick No. 1	11-18-15	1010	aband.

Bossier Parish—Elm Grove

Palmer Corp.	Hodges B-7	30-16-11	1935	10 m. gas

Waskom—Caddo Parish

Fortuna Oil Co.	Bryson No. 1	8-17-16	937	10 m. gas

TEXAS

Waskom—Harrison County

J. B. Greer	C. M. Abney No. 2 Blair HRS		987	5 m. gas
Morefield & Tanner	Lucy Long No. 1 Lipscomb HRS		965	15 m. gas
A. C. Scott	Vaughan No. 1 Anderson HRS		950	15 m. gas

Panola County

Company	Well	Location	Depth	Yield
Magnolia Pet. Co.	G.C. Tiller No.1 Jane Thorp HRS		1015	5 m. gas

ARKANSAS

Nevada County

Carter et al	Bailey No. 1	31-13-21	400	dry aband.
Humble Oil & Ref. Co.	Bodcaw Lbr. Co. No.1	6-15-22	1250	dry aband.

Smackover

Cumberland Pet. Co.	J.D.Reynolds No.3	23-15-17	2315	250
Hunt et al	Holton No. 1	23-15-17	2370	50
Magnolia Pet. Co.	Brown No. 1	26-15-17	2333	45
Riggs Drilling Co.	Green No. 3	23-15-17	2390	200
James S. Smith	Shirey B-2	36-15-17	2295	50
Staves et al	Jefferies No. 4	26-15-17	2350	20
W. G. Burton, trustee	Hughes No. 3	28-15-16	2301	25
Empire Gas & Fuel Co.	Bradley No. 4	30-15-15	2025	30
Crawford & Sebastian	Giller No. 3	14-16-15	1995	junked aband.
Simms Oil Co.	Laney Heirs A-1	8-16-16	2642	80
Weatherbee et al	Rice No. 3	6-16-16	2266	60
Magnolia Pet. Co.	M. J. Scott No. 1	12-16-17	2253	50
Rutledge, trustee	Hodges No. 4	1-16-17	2260	20
Gulf Refining Co.	Reynolds No. 2	23-15-17	2325	125
Gulf Refining Co.	Johnette et al No.1	33-15-16	2265	25

Completions North-Central and West Texas Week Ended January 31

PANHANDLE DISTRICT

Carson County

Company	Well No.	Lease	Depth	Production
Danciger Oil & Refg.	1	Burnett Estate	3130	temp. aband.
American Refining Co.	3	Burnett Estate	2845	100

Hutchinson County

H. T. McGee	1	Smith et al	3190	Aband.

Wheeler County

J. O. Whittington et al	2	Williams & Laycock	2190	90
Union Petroleum	1	Nicholson	1480	drilling deeper Aband.

WICHITA FALLS DISTRICT

Wilbarger County

Bridwell & Heydrick	3	Stephens	2290	300

Archer County—North

Ross Robertson et al	7	J. H. White	1605	140
Magnolia Petroleum	10	W. F. Parrish	1600	75
Roy I. Carter et al	17	White-E	1608	90
Prairie Oil & Gas	30	W. F. Parrish	1385	40

Archer County—South

Gwynn et al	1	M. E. Rogers-B	1275	90, ½ water
Gwynn et al	3	Wood	1310	90
Daniels & Rutis	1	Stampfli & Roberts	1355	150
Bridwell & Mayfield	1	Giddings	1805	Aband.
Harris et al	1	Bron	1385	20
Christie Bros.	1	Campbell Bank	1295	130
Murchison & Fain	6	Harmel-C	1275	160
Murchison & Fain	5	Wood	1310	60
Murchison & Fain	1	Lauster	1280	Aband.
M. G. Haskell et al	1	H. A. Moldran	1700	Aband.
Mutual Oil Co. and J. A. Gardner	5	Harmel	1275	60
Sun Oil Co.	5	Green	1085	Aband.
Sun Oil Co.	1	Kunkel	1345	260
Scruggs et al	1	Morrison	1230	Aband.
Simms Oil Co.	1	L. M. Key	1410	Aband.
Texhoma Oil & Refg.	2	Jeske	1200	Aband.
Roxana Petroleum	2	Kunkel	1160	700
Petroleum Producers	5	Pollei	1120	200
Shaw & Rathke	4	Hausler	1140	700
Wollett & Murphy	2	T. L. Griffin	1315	90
Wollett & Murphy	3	T. L. Griffin	1310	130

Young County—(North Shallow)

Texhoma Oil & Refg.	1	Gambrell	1220	250
Ed Carey	1	Roach	1500	Aband.
The Texas Co.	1	Gambrell	1225	250
Kentucky Oil Co.	1	Kilcrease	1085	Aband.
Murchison & Fain	3	Gambrell	1213	100, ½ water
Murchison & Fain	4	Gambrell	1215	130
Simms Oil Co.	2	Carpenter	1040	200
Simms Oil Co.	3	Carpenter	1040	210
Maer & Staniforth	1	Hamilton	1400	Aband.
Camp Oil & Gas Co.	1	Campbell	965	40
Pois & Johnson	1	Dietrich	1500	Aband.
White & Taylor	2	Stewart	905	Aband.

Clay County

Shappell Oil Co.	1	E. M. Goetze	2370	Aband.

GENERAL RANGER TERRITORY

Eastland County

States Oil Corp.	3	Davenport	1880	75
Calloway et al	1	Gullett	1470	60
States Oil Corp.	14	Harrell	1875	15
Gallagher & Lawson	1	Goodwin	2900	40

Brown County

Gillman et al	6	Newton	1305	20

Callahan County

Dutton et al	5	Cathey	1775	50

EAST CENTRAL TEXAS

Richland

Simms Oil Co.	6	Allison	3010	temp. aband.
Simms Oil Co.	2	Allison	3180	temp. aband.
John Hoosier	9	Swink	3050	temp. aband.
Boyd Oil Co.	9	Webb	3010	shut down

Wortham

Hapgood et al	1	Williams	3030	Aband.
Gay Hammond et al	1	Townsite	3010	Aband.
Magnolia Petroleum	4	Boyd	3020	400
Magnolia Petroleum	6	Boyd	3020	200
Magnolia Petroleum	7	Boyd	3020	700
Magnolia Petroleum	8	Boyd	3025	1200
Magnolia Petroleum	10	Boyd	3020	600
Magnolia Petroleum	12	Boyd	3025	1200
Magnolia Petroleum	13	Boyd	3020	100
Rio Bravo Oil Co.	7	Right of Way	2965	500
Moss & Keeling	1	Celia Moore	3008	1500
Simms Oil Co.	3	Manning	3030	200
Simms Oil Co.	6	Manning	3035	300
E. L. Smith Oil Co.	1	Keeling	2935	Aband.
E. L. Smith Oil Co.	2	Beall	2990	Aband.
Ray & Massie	1	Barry	2975	1200, ½ b.s. and w.
L. P. Hammond et al	2	Hockney	2700	temp. aband.
Humble Oil & Refg.	1	Manning	3000	750
Humble Oil & Refg.	3	Manning	3005	150
Humble Oil & Refg.	2	J. P. Stubbs	3050	Aband.
Humble Oil & Refg.	2	Simmons	2990	400
Humble Oil & Refg.	3	Lindley-A	2950	400
Humble Oil & Refg.	1	J. P. Stubbs	3005	1000, 35% b.s. and w.
Simms Oil Co.	8	Simmons	2975	1200, 50% b.s. and w.
Simms Oil Co.	9	Simmons	2975	400
Kirby Petroleum	1	Watson	2990	1200
Kirby Petroleum	1	Childs	1630	temp. aband.
Kirby Petroleum Co.	3	Watson	2995	900
Humble Oil & Refg.	8	Ella Dodd	3015	1500
Humble Oil & Refg.	4	Crouch-A	2990	1500
Humble Oil & Refg.	3	Ella Dodd	3025	2000
Sun Oil Co.	1	S. E. Bounds	3035	Aband.
Sun Oil Co.	2	Simmons	3000	200
Farrish, Watts & Collins	2	McCorkle	3030	1500
Farrish, Watts & Collins	3	Jackson	3010	1000
Farrish, Watts & Collins	4	Jackson	3020	300
Farrish, Watts & Collins	1	Wright	3180	Aband.
Oxford Oil Co.	1	Phillips	3005	1000
Boyd Oil Co.	2	W. E. Smith-A	2998	1500
Boyd Oil Co.	1	W. E. Smith-B	3005	1800
Boyd Oil Co.	3	Wilson-A	3025	1800
Boyd Oil Co.	3	Ferguson	685	temp aband.
Pure Oil Co.	2	Crouch	2990	Aband.
Pure Oil Co.	3	Crouch	2920	Aband.
Boyd Oil Co.	1	Wilson-A	3010	600
J.K. Hughes Developing Co.	3	Crouch	3005	250
Atlantic Oil Prod. Co.	3	Edwards	700	Aband.
Owenwood Oil Co.	1	Simmons	3010	Aband.

Chief Revival of Activity is in Old Caddo District

By Special Correspondent

SHREVEPORT, Jan. 29

THE Palmer Corp.'s Tillman No. 1, located in the southwest corner of the NW¼NE¼ of 28-21-10 of the Southwest Extension to the Cotton Valley Field was completed this week with an initial production of 350 barrels of oil per day from 26 feet of sand at a total depth of 2578 feet. The well makes considerable sand; and is at present closed in, after having cut its connections three times. When tested a fortnight ago, this well made only gas with a slight spray of oil.

The Louisiana Oil Refining Corp. is rat-holing ahead in search of the Blossom sand at around 2700 feet in its Armor wildcat, in 21-23-9 of the Shongaloo District in Webster Parish. C. C. Hummer, drilling superintendent for the Louisiana company, stated to a representative of National Petroleum News that, from a comparison of the two logs, this well appears to be checking about 25 or 30 feet lower, structurally, than the Sinclair Oil Co.'s Mayfield gas well in Sec. 20 of the same township, which sprayed oil in considerable quantity when completed in 1921. The Mayfield well is about one mile west of the Armor well. The final string of casing has not yet been set in the current wildcat.

The Atlantic Oil Producing Co.'s Bodcau Lumber Co. No. 2 in 24-23-12 of the Spring Hill District of Bossier Parish, has been abandoned as dry without a test at a total depth of 2636 feet.

The Gulf Refining Co.'s Waterman deep test in the Waskom gas field, located on the E. Pollack Headright Survey and within the Thigpen-Herold-Muslow block of leases, the oil rights whereunder were obtained by the Gulf company for prospecting purposes, was bailed dry yesterday, with only a slight showing of gas, at a total depth of 2380 feet. The test was made in the Woodbine horizon. Both the Nacatoch and Blossom sands are productive of gas on this structure. Preparations are being made to drill deeper in the Gulf's well.

The Dixie Oil Co.'s Robertshaw No. 43, in 13-21-15 of the Pine Island District of Caddo Parish, is coming to be considered one of the most remarkable wells ever drilled in this territory. It was completed on Oct. 31 of last year with an initial production of 46 million cubic feet of gas per day from 85 feet of broken sand at a total depth of 3623 feet. Considerable difficulty was experienced in bringing the well under control; but it was connected to the Arkansas Natural Gas Co.'s trunk gas line on Dec. 1, since which time from 7 to 15 million cubic feet of gas per day has been drawn from it. Its working pressure exceeds 1200 pounds. In fact, it is said that its tremendous pressure forces gas all the way to Little Rock, Arkansas, without the aid of pumps. Its most remarkable feature, is that drips in its flow lines yield in excess of 3000 gallons of 68° gasoline per day. At present market prices, its yield of gasoline alone is worth around $240 per day, not counting large quantities of gasoline which are recovered from the Arkansas Natural company's gas lines.

There is a marked revival of drilling activity in the Morringsport section of the Caddo Field. tt is probable that neighboring operators are searching for the mysterious sand which paid off so richly in the Gulf Refining Co.'s Ferry Lake gusher, completed last April. The Texas Co. is setting a string of 6-inch casing at 3500 feet in its Federal Jeems Bayou No. 1, in 15-20-16; and is drilling deeper at 2960 feet in its Caddo Mineral Lands Co. No. 43, in 23-21-15, an old well which was originally completed more than two years ago. The Standard Oil Co. of Louisiana is rigging up to drill well No. 170, probably a deep test, on its Stiles Lease, in 27-21-16. The Gulf Refining Co. has pulled liner and is drilling deeper in its Ferry Lake No. 69, another old producer, in 14-20-16.

'Twould be a strange thing if the old reliable Caddo Field should experience another boom as a result of deep sand developments; yet this seems not impossible, when one considers the Dixie's "gasoline well' and the Gulf's Ferry Lake gusher.

The Arkansas Natural Gas Co. has cemented 10-inch casing at 1785 feet in its Prince-Horton No. 4, in 30-16-11, of the Elm Grove Field, in Bossier parish. A deep test appears to be in prospect.

Palmer & Blount are moving a rig to their newly-made wildcat location on the Mason property, in section 20-18-10, near Doyline, in Webster Parish. Other wells drilled in his vicinity during recent years have yielded showings of oil and gas from the shallow sands.

Clark & Melat are rigging up on their Heard wildcat, in 5-21-6, northeast of Homer, in Claiborne Parish.

LOS ANGELES,—William C. Reinhardt, who has been general superintendent of field activities for the Shell Co., of California, for the past year, is in general charge of operations for the Shell while William C. McDuffie, operating vice-president, is on a trip to Europe. McDuffie will probably be absent from this city for three months, during which time he will probably visit the European headquarters of the Shell organization.

DETROIT, MICH., Jan. 16.—A fire which recently destroyed the Vicent Steel Products plant here, seriously damaged the office building, garage and warehouse of the Motor City Oil Co., according to Burdette M. Smith, secretary of the latter. A gasoline tank exploded at the plant of the Motor City company after the fire was well under way at the Vicent plant.

Completion is Near in Lake Charles Pool

By Special Correspondent

LAKE CHARLES, LA., Jan. 30.—The Vacuum Oil Co. is attempting to bring in its No. 1 Farquhar, located in the northwest corner of the NE¼SW¼ of 9-10-9W of the new Lake Charles Field, in Calcasieu Parish. An oil-bearing sand encountered at 2271 feet was penetrated to a depth of nine feet, after which the well flowed a day and a half with no liner in the hole before sanding up. It made around 1200 barrels of fluid per day, of which about 10 per cent was oil and the balance salt water. A joint of screen has been set and sealed to the 6-inch casing, which was set at 2234 feet. The screw is now fishing for the bailer, which was lost in the hole.

The Farquhar well is about a half mile southwest of Miller No. 1, the discovery well, which was completed on Sept. 9 of last year at a total depth of 3876 feet with an initial production of from 3000 to 4000 barrels of pipe line oil per day through a ¾-inch choke. The Miller well is still flowing at the rate of 450 barrels of oil per day.

Other current operations in the Gulf Coastal territory are progressing as follows:

Acadia Parish

T .F. Denman's Chappiens 1, 56-10-1E, 3 miles west of Crowley moving in rig.

Ascension Parish

Empire Gas & Fuel Co.'s United Sand Co. 1, 22-10-4E: Derrick.

Calcasieu Parish

Marland Oil Co.'s United Sand Co. 1, 15-10-9: Drilling at 1850 feet.

Roxana Pet. Co.'s S. S. Hunter 1, 22-9-11: Drilling at 2010 feet.

Southern Exploration Co.'s Clooney 1, 2-10-9: Abandoned at 4223 feet.

Vacuum Oil Co.'s Bordages 1, 9-10-9W: Showing oil at 4400 feet:

Vacuum Oil Co.'s Gray 1, 10-10-9 W, half mile northeast of Lake Charles discovery well: Bandoned at 5260 feet.

Cameron Parish

Pure Oil Co.'s North American Sand Co. 1, 12-13-8W: Drilling at 100 feet.

St. Mary Parish

Danenbaum & Co.'s LeBlanc 1, 25-13-9E: Shut down at 2063 feet.

Glen-Wild Oil Co.'s Pharr 1, 22-15-12: Drilling at 2180 feet.

Vermillion Parish

United O. & G. Co.'s LeBlanc 1, 63-12-5E; Drilling at 3115 feet.

Increase in Demand for Pipe is Expected at Early Date

PITTSBURGH, Feb. 2

By Special Correspondent

IMPROVEMENT as to tonnage still is lacking in tubular goods orders from the various oil fields, but the trade believes numerous inquiries are in the making and the outlook for spring business is particularly bright. Crude oil price increases, together with premiums being paid for oils in different sections, all encourage drilling and as soon as roads become passable, the demand for oil country goods, line pipe, etc., will increase. As it is, the pipe mills are able to operate 80 per cent of capacity mostly on standard full weight merchant pipe, although orders for three to five carloads of the pipe they handle have been more numerous from the oil country jobbers of late.

Exports of casing and oil line pipe in Dec., 1924, were considerably less than in December of 1923, 9,219,654 pounds being exported in December, 1924 as against 15,118,969 pounds in the same month the previous year. The respective values of these shipments were $359,734 and $786,946.

Spasmodic inquiry for plates for oil tanks, etc., continues and for 3000 tanks only 1500 tons of plates out in New York from the Standard Oil Co. of New York, testifying to the increased use of crude oil for domestic heating purposes. The Pan-American Petroleum Corp., Oakland, Calif., however, has an inquiry out or is about to issue one for 18 storage tanks, taking 1500 tons of plates. In New York, plates are quoted at 2.34 cents to 2.44 cents. At San Francisco as high as 2.60 cents c. i. f. is quoted. At Chicago the plate price has been advanced $2.00 per ton to 2.30 cents while at Pittsburgh from 2.00 cents to 2.10 cents is quoted, the latter for second quarter delivery.

At Pittsburgh little is pending in the way of tank inquiry but an inquiry is out for a gas holder at Louisville, Ky. taking 2750 tons. In Chicago tank makers continue to specify freely against the plate contracts, one placing orders for 2000 tons again last week.

In the Philadelphia district plate sellers note an improved inquiry rate on storage tanks as well as on boilers used in the oil well fields. The Associated Oil Co., Monterey, Calif., has awarded a contract to the Western Pipe & Steel Co. for one 37,500-barrel tank taking 125 tons of plates.

During the recent Wortham, Tex., boom orders for steel storage tanks having a total capacity of 10,480,000 barrels were placed with fabricators here, in Sharon, Pa., Youngstown, O., Chicago and elsewhere, including the following:

Humphreys-Boyd Oil Co., 50 tanks, 2,750,000 barrels.

Pierce Oil & Gas Co., 5 tanks of 80,000 barrels, 400,000 barrels; 19 tanks of 55,000 barrels, 1,045,000 barrels; total, 1,445,000 barrels.

Humble Oil & Refining Co., 20 tanks of 55,000 barrels, 1,000,000 barrels.

E. L. Smith Oil Co., 4 tanks of 55,000 barrels, 220,000 barrels.

Sun Oil Co., 4 tanks of 55,000 barrels, 220,000 barrels.

Pure Oil Pipe Line Co., 4 tanks of 55,000 barrels, 220,000 barrels.

Atlantic Oil & Production Co., 5 tanks of 80,000 barrels, 400,000 barrels; 2 tanks of 55,000 barrels, 110,000 barrels; total, 510,000 barrels.

Simms Oil Co., 5 tanks of 55,000 barrels, 275,000 barrels.

Orders and Inquiries

The Roxana Petroleum Co., St. Louis, is expanding. A new building is up for bids, requiring 250 tons of reinforcing concrete bars.

The Standard Oil Co. of Louisiana will arrange shortly for the construction of a new plant to manufacture paraffin and kindred petroleum by-products. A 10-acre site recently acquired will be utilized.

The Big Lake Oil Co., Big Lake, Texas, is about to erect a skimming plant to cost $200,000 with machinery. Levi Smith is president.

The Consolidated Gasoline Co., Eastland, Tex., is contemplating the early erection of a gasoline plant west of that city's limits. It will cost $300,000 with equipment.

The Sinclair Refining Co., 45 Nassau St., New York, recently acquired property in the South End district, Cumberland, Md. It will erect a new oil storage and distributing plant, including service, repair and garage building to cost $90,000.

The Standard Oil Co. of Indiana will take bids early this month on a 1-story and a 2-story building 80 x 200 feet, at East St. Louis, Ill., to cost approximately $90,000. Schling and Bailey, Monadnock Bldg., Chicago, are the engineers.

The Hope Natural Gas Co., Charleston, W. Va., a subsidiary of the Standard Oil Co. of New Jersey, 26 Broadway, New York, has acquired land in the Big Sandy district, West Virginia. It is understood to be planning the construction of a new pumping station.

The Wayne Tank & Pump Co., Fort Wayne, Ind., has acquired the plant and business of the Continental Oil Burner Co., Chicago and will consolidate with its organization. It is proposed to remove the Chicago business to the Fort Wayne plant where a department will be equipped for oil burner production.

The Bradford Supply Co., Bradford, Pa., manufacturer of oil field machinery and equipment, plans a 1-story machine shop at Eldred, Pa. It will cost $25,000 exclusive of equipment.

The Humphreys-Boyd Oil Co., recently closed a contract with the Gasoline Recovery Co., Charleston, W. Va. for the construction of a casinghead gasoline plant near that city to cost $150,000. The plant will have a capacity of 20,000,000 cubic feet of natural gas daily. The charcoal process of extracting the gasoline will be used, it is stated.

Ventura Ave. Field Gets Deep "Gusher" Well

By Special Correspondent

LOS ANGELES, Jan. 30.—Astonishing production possibilities have just been opened up in the old Ventura Avenue oil field at Ventura by the bringing in today of the Lloyd No. 9-A which is yielding 4,550 barrels a day from a depth of 5150 feet. It is the property of the Associated Oil Co. Gravity of the product is 29 degrees. Reports say that the hole is producing from 1000 feet of oil formation. This is in Ventura county, which adjoins Los Angeles county, scene of the recent "gusher" fields.

The Ventura Avenue field has been producing for about 20 years, having had, until recently, about 18 wells on the active list, averaging in output perhaps 300 barrels apiece, daily. Within the last two years the Shell Co. of California, General Petroleum Corp. and Associated, have been drilling into a deeper zone, and all have obtained better producers.

The best well that the field ever saw until yesterday was the Associated's Lloyd No. 5, drilled in during October 1922 from a depth of 4051 feet and yielding 1900 barrels initial output. The next best well was the Associated's Lloyd No. 8, completed in February, 1924, at 4367 feet and yielding 1370 barrels. Associated completed Lloyd No. 12 last July at 4903 feet and got 1010 barrels daily initial production.

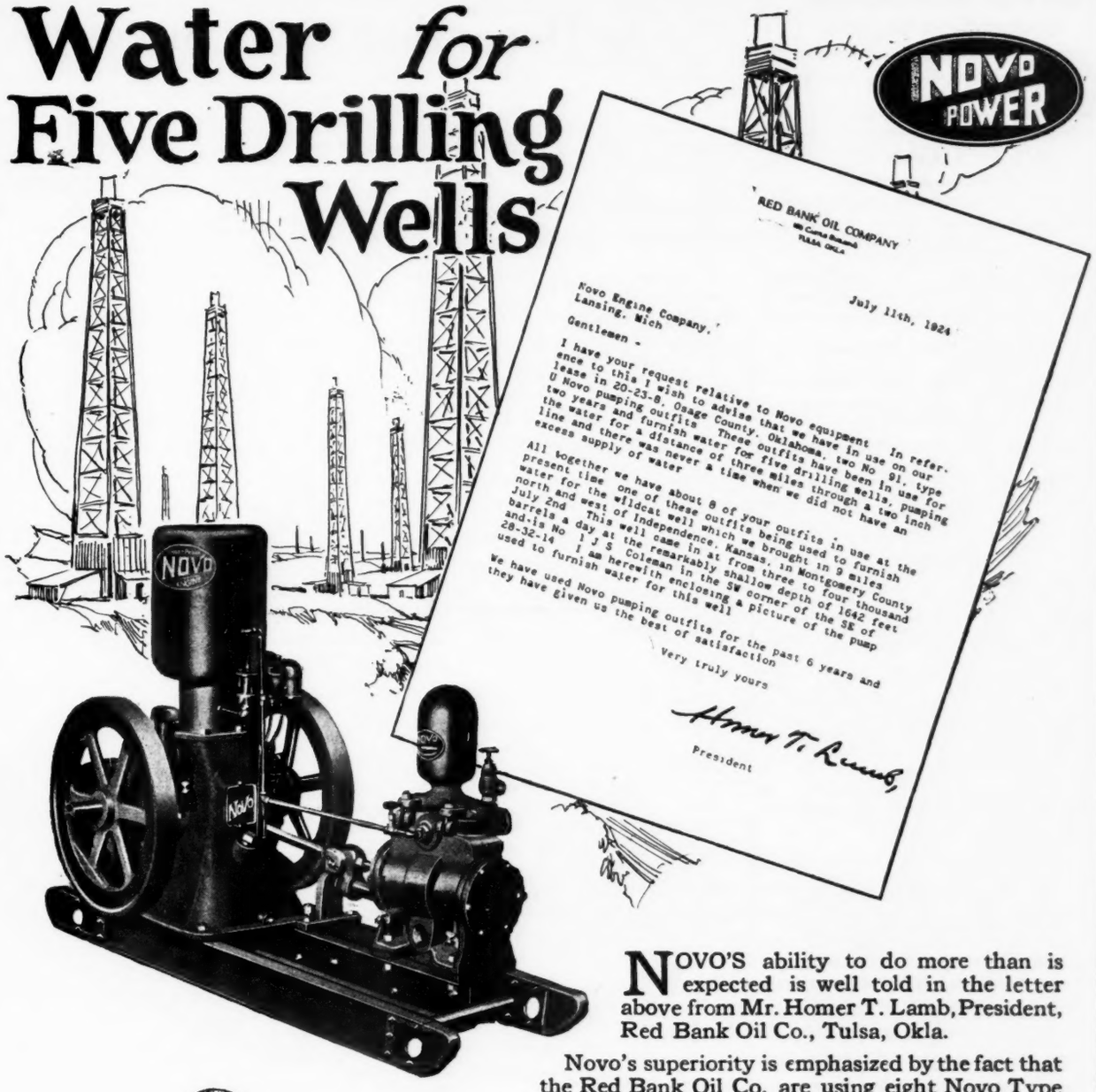
These wells were considered top-notchers for the Ventura district, and gusher production was not even thought of, although it was believed that somewhat larger wells might be secured by deeper drilling. The Associated now has a well, drilling at a depth greater than that of the new No. 9-A, which it expects to complete within a week or ten days.

The early production was obtained at depths ranging from 1800 to 2500 feet. Production was next obtained at depths between 3000 and 3500 feet. Now they are getting the bigger stuff from depths ranging between 4050 and 5200 feet.

During December just past the field yielded 183,149 barrels of oil, divided as follows: Shell, 41,605 barrels; General Petroleum, 45,359 barrels; Associated, 96,185 barrels.

Geologists express the belief that the new producing zone will open up a surprisingly good field at Ventura, and an active drilling campaign all over the county is expected as a result of the Associated's most recent completion.

Water *for* Five Drilling Wells


NOVO POWER
RED BANK OIL COMPANY
July 11th, 1924
Novo Engine Company,
Lansing, Mich
Gentlemen -
I have your request relative to Novo equipment. In reference to this I wish to advise that we have in use on our lease in 20-23-8, Osage County, Oklahoma, two No 9½ type U Novo pumping outfits. These outfits have been in use for two years and furnish water for five drilling wells, pumping the water for a distance of three miles through a two inch line and there was never a time when we did not have an excess supply of water.
All together we have about 8 of your outfits in use at the present time, one of these outfits being used to furnish water for the wildcat well which we brought in 9 miles north and west of Independence, Kansas, in Montgomery County July 2nd. This well came in at from three to four thousand barrels a day at the remarkably shallow depth of 1642 feet and is No 1 J S Coleman in the SW corner of the SE of 28-32-14. I am herewith enclosing a picture of the pump used to furnish water for this well.
We have used Novo pumping outfits for the past 6 years and they have given us the best of satisfaction.
Very truly yours
Homer T. Lamb
President
NOVO

NOVO'S ability to do more than is expected is well told in the letter above from Mr. Homer T. Lamb, President, Red Bank Oil Co., Tulsa, Okla.

Novo's superiority is emphasized by the fact that the Red Bank Oil Co. are using eight Novo Type U, single cylinder, double acting pressure pumps.

Novo's Reliability is proven by the fact that for six years Novo has given the Red Bank Oil Co. "the best of satisfaction."

♦ ♦ ♦

Water for five drilling wells! Perhaps you need a pump that will do for you what Novo did for the Red Bank Oil Co.

We will gladly supply more information.

NOVO ENGINE CO.
Clarence E. Bement, Vice-Pres. & Gen. Mgr.
LANSING — MICHIGAN
Cable Address "NOVO LANSING"
Distributors Throughout the World

NOVO POWER
Keeps Operations Moving

ENGINES	HOISTS		PUMPS	COMPRESSORS
Single Cylinder, 1½-10 H.P. (frost proof)—two cylinder, 6-12 H.P.—four cylinder, 12-40 H.P.	Single and double drum—one and two speed and reversible, portable heavy duty types—powered with Novo Engines	NOVO POWER	Open and closed top diaphragm—centrifugal—deep well—single, duplex double acting and triplex pressure pumps.	Three sizes—up to 170 cubic feet—with steel housings mounted on trucks. Combination hoists and compressors

DAVID DONOGHUE
Geologist and Engineer
Appraisals and Geological Reports
West Building, Houston, Texas

W. L. GOMORY
Chemical Engineer
Consulting Petroleum Technologist
Inventor Gomory Cracking Process
Licenses Solicited
Refinery Design
Peoples Gas Bldg. - Chicago

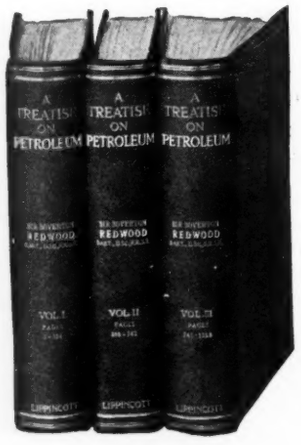
L. G. Huntley Stirling Huntley
HUNTLEY & HUNTLEY
PETROLEUM GEOLOGISTS AND ENGINEERS
Frick Building PITTSBURGH, PA.

Professional Card Directory

Professional advertising keeps your name constantly before the industry you are engaged in. When the readers of *National Petroleum News* want professional services they will naturally turn to this directory.

The Cost is small

1-inch card $25 a quarter in advance—$100 a year for 26 issues. 2-inch card $50 a quarter in advance—$200 a year for 26 issues. Larger space increases proportionately. Single insertion rate $5.



There are 1,383 pages of information on all branches of the industry to be found in the revised 4th edition of A TREATISE ON PETROLEUM by Sir Boverton Redwood.

Just send your order and check for $39 to—

National Petroleum News
811 Caxton Bldg., Cleveland, Ohio

Stocks Decreased 6 Million Bbls. in December, Says Survey

WASHINGTON, Jan. 31.—Deliveries of crude petroleum to domestic consumers averaged 2,199,226 barrels daily during December and established a new high record, exceeding the previous high attained in November by 58,926 barrels, according to the U. S. Geological Survey. Production continued the decline which started in September, notwithstanding the development of the new Wortham pool, and the daily average for the month, amounting to 1,826,355 barrels, decreased 50,212 barrels as compared with that for November.

Daily average imports, amounting to 188,419 barrels, declined 33,214 barrels, so that the total new supply for the month was lower than for any month since February, 1923. Daily average exports of crude oil, amounting to 33,677 barrels, decreased 14,756 barrels. A result of the month's operations was a decrease of pipe line and tank farm stocks amounting to 6,762,000 barrels, the greatest ever recorded for any one month.

Preliminary figures for the year of 707,000,000 barrels transported from producing properties indicate a total output for the year of approximately 714,000,000 barrels and mark the first annual decrease in production since 1906. Imports for the year amounted to less than 78,000,000 barrels, a decrease of 4,000,000 barrels. Exports of crude oil, 18,000,000 barrels, increased slightly. Deliveries to domestic consumers amounted to more than 748,000,000 barrels and established another high record. The year's operations resulted in an increase of 18,000,000 barrels of pipe line and tank farm stocks, marking the sixth successive year of increase in stocks.

Daily Production of Crude Oil by States

	December	Change over November
California	606,294	+14,060
Mid-Continent—		
Oklahoma	479,675	—25,725
Kansas	71,774	— 7,993
Total Mid-Continent	551,449	—33,718
Southwestern—		
N. and Cent. Texas	281,613	+ 5,246
North Louisiana	45,806	— 4,427
Arkansas	98,194	—13,139
Total Southwestern	425,613	—12,320
Gulf Constal—		
Texas Coastal	60,613	—7,453
Louisiana Coastal	7,226	— 241
Total Coastal	67,839	—7,694
Rocky Mountain—		
Wyoming	69,590	—8,744
Montana	7,129	— 871
Colorado	1,765	— 368
New Mexico	516	+ 16
Total Rocky Mt.	79,000	—9,967
Central States—		
Illinois	19,774	— 926
Indiana	2,097	— 69
Ohio (Lima)	4,645	— 89
Total Cent. States	26,516	—1,084
Appalachian—		
Kentucky	18,400	—490
Pennsylvania	19,032	— 1
West Virginia	15,032	+332
Ohio (except Lima)	13,290	+390
New York	3,871	+271
Tennessee	19	+ 9
Total Appalachian	69,644	+511
Grand Total	**1,826,355**	**—50,212**

Indicated Daily Consumption

(Deliveries by pipe lines and other marketing companies to refiners and other consumers, daily average.)

	December	Change over November
Appalachian	70,774	+ 1,240
Lima-Indiana	5,064	— 2,269
Ill. and S.W. Ind.	26,548	— 2,452
Mid-Continent	1,156,839	+51,406
Gulf Coast	84,710	— 4,323
Rocky Mountain	87,452	—10,315
California	587,355	+14,655
Total Domestic	2,018,742	+47,942
Exports	33,161	—14,705
Consumed in U. S.	2,051,903	+33,237
Imported Petroleum	213,645	— 3,721
Total Consumption in U. S.	2,265,548	+29,516

Pipe Line and Tank Farm Stocks

(Domestic stocks by origin of oil, not location of storage.)

Appalachian(N.Y.) Pa., W.Va., E. and Cent. Ohio	7,022,000	+ 96
Kentucky	2,267,000	— 131
Lima-Indiana	1,221,000	+ 3
Ill., and S.W. Ind.	10,870,000	— 167
Mid-Cont., (Okla., Kan., N. and Cen. Texas)	175,624,000	—4,621
No. La and Ark.	33,705,000	— 952
Gulf Coast	20,200 000	— 523
Rocky Mountain	28,675,000	— 262
Total E. of Calif.	279,584,000	—6,650
California gross	69,813,000	+ 587

Imported Oil

Atlantic Coast—		
Crude	176,000	— 3,000
Topped oil topped in Mexico	2,576,000	—642,000
Gulf Coast—		
Crude	535,000	— 37,000
Topped oil topped in Mexico	212,000	—116,000
Total imported	3,499,000	—798,000
Grand total crude stocks except at refineries	**352,896,000**	**—6,762,000**

Imports and Exports of Crude Oil

(From Bureau of Foreign and Domestic Commerce.)

Imports (daily average)—

	December	Change over November
From Mexico	188,419	—24,014
From other countries		— 9,200
Total imports	188,419	—33,214

Exports (daily average)—

Domestic oil to Canada	15,677	—14,656
To other countries	17,484	— 49
Foreign crude oil.	516	— 51
Total exports	33,677	—14,756

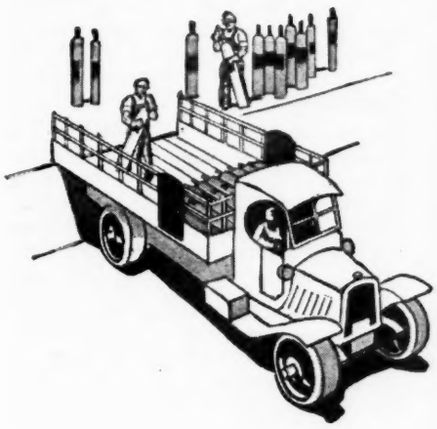
Excess of imports of crude oil over exports in December was daily 154,742.

FORT WORTH.—The 1925 convention of the National Oil Scouts Association will be held in Ardmore in June. The place of meeting was decided upon at a meeting of the executive committee held this week in Dallas.

SHREVEPORT.—Advises from Camden, Ark., state that fifty new wells have been started in the Louann territory since January 1.

"This phase of our service will be recognized"—

wrote a vice-president of the Linde Company six years ago



IN RECOMMENDING that the Linde Company enlarge its service to include the giving of help to Linde customers in their use of processes requiring Linde oxygen, this vice-president wrote six years ago:

> "This phase of our service can, I am confident, be developed to an extent that, in the course of time it will be recognized by a large percentage of the users of our products as an important factor in the oxy-acetylene field, and will be called upon freely for advice in small as well as large matters."

Time has proved the soundness of this prediction. Thousands of Linde users depend upon Linde Process Service to increase their profits from the use of Linde oxygen. Moreover, the fact that practically all oxygen manufacturers now offer service of this kind indicates that the whole oxygen industry recognizes its value.

Linde Process Service is planned for every Linde user. It reaches out into the shop where but one blowpipe is owned to make its use better and more profitable. It goes to the largest industrial organizations to be of help to every one from the welder's helper to the president.

Each individual case challenges the ability of Linde Process Service to quickly and efficiently adapt itself to the size and difficulty of the problem. Successful service in each specific case makes Linde Process Service better and more helpful to all Linde customers.

Linde Process Service is free to every Linde user for the asking

District Sales Offices

ATLANTA
BALTIMORE
BIRMINGHAM
BOSTON
BUFFALO
CHICAGO
CLEVELAND
DALLAS
DETROIT
KANSAS CITY
LOS ANGELES
MILWAUKEE
NEW ORLEANS
NEW YORK
PHILADELPHIA
PITTSBURGH
ST. LOUIS
SALT LAKE CITY
SAN FRANCISCO
SEATTLE
TULSA

THE LINDE AIR PRODUCTS COMPANY

General Offices: Carbide & Carbon Building
30 East 42d Street, New York

37 PLANTS — 80 WAREHOUSES

LINDE OXYGEN

YOU CAN DEPEND ON THE LINDE COMPANY

Valves that need no "nursing"

Fig. 331, flanged, Standard Iron Body Gate Valve.

Jenkins Valves are not the kind that demand constant attention in the way of repairs and replacements. They are valves you can install and forget.

The Jenkins "Diamond" mark identifies a valve well made of the best metals. It means a valve which has been tested to allow a wide margin of reserve strength in the service for which it is recommended.

When so ordered, Jenkins Valves are specially tested for oil service.

JENKINS BROS.

80 White Street.....New York, N. Y.
524 Atlantic Avenue.....Boston, Mass.
133 No. Seventh Street.....Philadelphia, Pa.
646 Washington Boulevard.....Chicago, Ill.

JENKINS BROS., LIMITED
Montreal, Canada London, England

Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

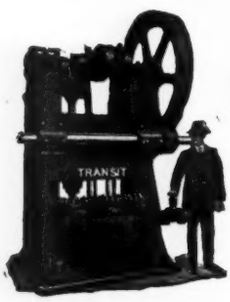
Tret-O-litE
Reg. U. S. Pat. Off.

PROCESS PATENTED. The Barnickel processes for treatment of cut oil and other petroleum emulsions by the use of chemical agents are protected by valid process patents issued by the United States and foreign countries.

The purchaser of TRET-O-LITE is licensed to practice the Barnickel processes to the extent permitted by the quantity of TRET-O-LITE purchased. He is not licensed to use any other chemical covered by the Barnickel patents, either alone or with TRET-O-LITE.

WM. S. BARNICKEL & CO. St. Louis, Mo.

TRANSIT PUMPS



Standard
PIPE LINE, REFINERY, FIELD
Pumps

National Transit Pump & Machine Co.
OIL CITY, PA.
District Offices: New York, Philadelphia, Tulsa, Cleveland, Pittsburgh, Houston and Denver

Salt Creek Operators Discuss Vacuum

CASPER, Jan. 29.—At a specially called meeting of the Rocky Mountain Oil & Gas Association today representatives of practically all the producing companies of the Salt Creek field and representatives of Bureau of Mines, after careful discussion of the advisability of installing vacuum plants in the Salt Creek field were almost unanimous in the opinion that the system would not prove either economical or practical at this time and urged that it should not be attempted in the Salt Creek field for at least a year or two if at all.

Appointment of a committee was recommended to make a complete survey and investigation of the matter as related to Salt Creek field with instructions to report back to the association at a meeting to be called several months hence to consider its report.

The Bureau of Mines was asked to lend cooperation and to gather data of experience of this system in other fields. In the meantime it was the sense of the meeting that all producing companies in Salt Creek refrain from applying vacuum exceeding four inches above atmospheric pressure until such times as the committee had reported and action had been determined by the association.

Houston Geologists Hold Annual Dance

Staff Special

HOUSTON, Jan. 29.—The annual dance of the Houston Geological Society was held last Friday night at the University Club and was attended by about 100 members and guests.

The affair was planned by a committee composed of Dilworth Hager of the Gulf Production Co., as chairman, assisted by Miss Laura Lee Lane, paleontologist for Alexander Deussen, and Miss Emma Jane Coffman of the Humble Oil & Refining Co. laboratory staff.

John R. Suman, president and manager of production for the Rio Bravo Oil Co., was floor manager of the dancing program. Bridge tables were provided for those who did not dance.

Suman is accused by numerous friends of putting on a nifty "Paul Jones stunt," whatever that is, the writer disclaiming all knowledge of the technical points of dancing; and Alexander Deussen, who abandoned his consulting practice to become vice president of the Marland Oil Co. of Texas, in charge of Gulf Coastal operations, is reported to have found his agility all that it had ever been notwithstanding the recent removal of a pair of tonsils. David von Donoghue, secretary of the Society, whose Celtic ancestry is mixed with a Prussian name solely because of his familiar German haircut, was unavoidably absent.

Your Oil
Goods Sell Faster

Remind Motorists to Buy Your Brand

are their neat, compact design; their totally-enclosed dust-proof, water-tight pumps; and their staunch, durable construction. Marvel quality through and through with the new Marvel baked-enamel finish.

THE MARVEL EQUIPMENT COMPANY, *Cleveland, Ohio*
The Marvel Equipment Company, Ltd., 12 King Street, East, Toronto, Ontario, Canada

PUMPS
Dispensing Equipment

Effect of Back Pressure on Oil and Gas Shown in Report

WASHINGTON Jan. 30

THE results of a series of experiments conducted by Interior Department engineers to ascertain the effect of back pressure on the production of oil and gas are contained in Technical Paper 322, by T. E. Swigart and C. R. Bopp, just issued by the Bureau of Mines. The experimental work was designed especially to determine how far the gas production of an oil well can be curtailed while the sand still contains plenty of gas, which can thus be saved to do work during the later life of the well.

Virtually all oil men agree that "when the gas is gone" the average oil well, except one that produces under a "water head," is practically exhausted. Experienced oil men agree that if gas could be conserved and the rock pressure in the oil sand thus sustained above the usual level, the daily production of oil wells would decline more slowly. This, of course, would result in a greater total ultimate production of oil from each well.

To hold back pressures on pumping wells will cut down the daily gas production as well as the total number of cubic feet of gas produced with each barrel of oil. The practical application of the back-pressure method is limited, however. The amount of back-pressure that can be held also depends on a number of variable factors difficult to weigh until actual experiments are made. The operator who wishes to hold some back pressure on his oil wells and thus delay the exhaustion of natural gas from his property must consider the possible effect if his neighbor continues producing at lower pressures or at atmospheric pressure. It is believed that under ordinary circumstances an operator who holds back pressures of more than 5 or 10 pounds on his line wells—if they are offset at the usual distances—will be liable to lose oil by its migrating to a neighbor's well that is producing at atmospheric pressure.

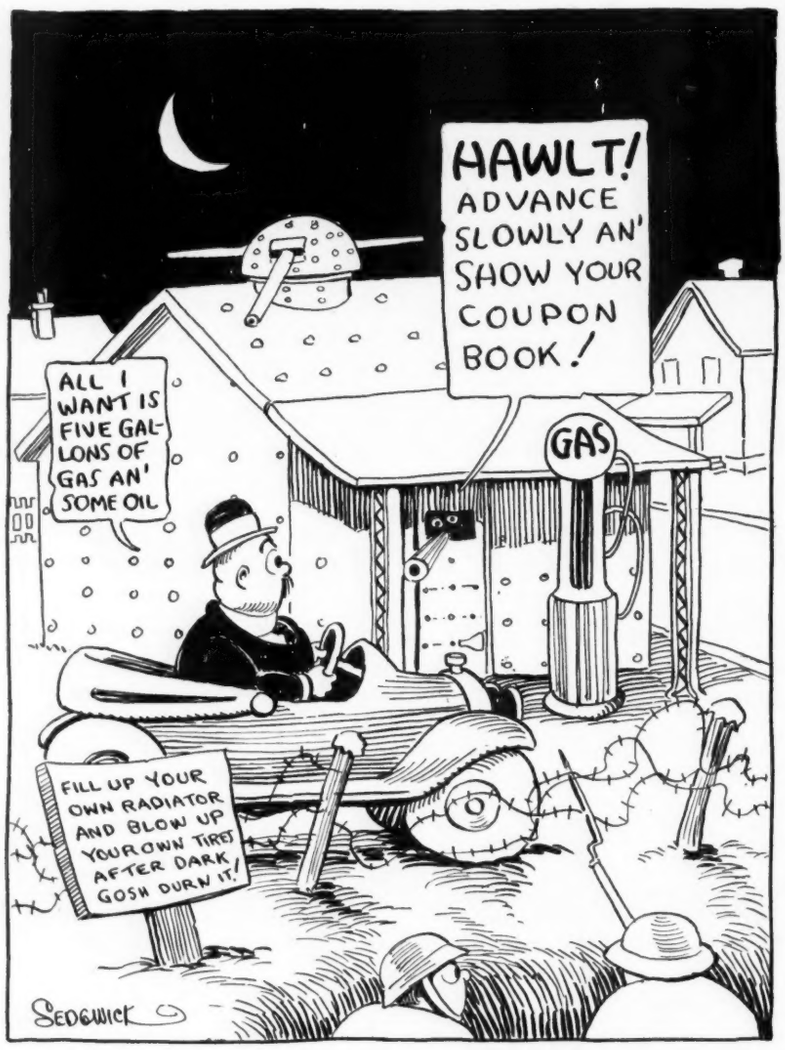
An agreement between all operators in a field whereby everybody held some pressure would be most desirable. Under such an arrangement the rock pressure in fields that now practically exhaust their gas within a few years would be maintained at comparatively high levels for many years.

In general, high back pressure can be held on isolated wells, on the "inside" wells of large tracts, or on all wells of isolated tracts without seriously reducing the present daily production, and without danger of the loss of oil by migration. Perhaps the most difficult case to handle is that of the operator who has a relatively small tract on which every well is a line well. Back pressures higher than enough to collect the casing-head gas can not be recommended to such an operator unless his neighbors will put on pressure also. If an operator owns a lease of 80 acres or more on which he has inside locations he could probably afford to hold his inside wells under pressure and his line wells at the same pressure, or a little above the pressure on his neighbors' wells if they were producing at lower pressures.

As regards the application of back pressure in the field, the need for carefully regulating pressure and determining efficiency is paramount. Slipshod operating methods are almost certain to fail wholly or at least partly. Experience gained in the Bureau of Mines tests leads to the belief that a careful study of conditions, combined with frequent simple field tests, would enable an operator to obtain good results.

Oil and water must be gaged accurately. The daily gages of near-by wells and of the lease also should be watched. The pressures on the wells may be held most easily by closing in the casing heads and may be determined by pressure gages. If a common gas-line takes gas from the casing heads of a number of wells it might be desirable to hold a common back pressure on them all and gage their oil and gas productions collectively. The individual wells should be gaged before and after the pressure is put on so that any noticeable decline in oil production may be detected. Gas production before and after the pressure is put on should also be measured—by "cutting" the particular well off the line and testing it for 24 hours or more with an orifice well-tester. The casing-head gas production of wells or units of more than one well is quite as important as the oil production because upon both depends the efficiency of the method. The operator will have to choose the best method available for measuring gas production. Under ordinary circumstances the head-line gas production will not be large enough to warrant careful measurement, particularly if gas anchors are installed before the tests are started.

Copies of Technical Paper 322 may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C.


HAWLT! ADVANCE SLOWLY AN' SHOW YOUR COUPON BOOK!
ALL I WANT IS FIVE GALLONS OF GAS AN' SOME OIL
GAS
FILL UP YOUR OWN RADIATOR AND BLOW UP YOUR OWN TIRES AFTER DARK. GOSH DURN IT!
SEDGWICK

If Service Station Robberies Continue—

THE EDITORS' VIEWPOINT

Help the A. P. I. Avoid an Emergency

IT IS strange how little interest the average business man takes in something that appears to be a bit outside his regular line of business until his toe gets pinched. Then the one particular thing in the world that he is most interested in and that he thinks everybody else ought to be interested in, is that brick which is pressing on his toe. He has no patience with anyone who can't jump to his assistance at once to help remove that brick.

That is human nature—that is also the oil man. It is the oil man in reference to fire protection. He's not interested in any regulations whether by municipalities or the fire insurance rating bureaus in the abstract. He's only interested when a regulation appears on the horizon which promises to make him bury some storage tanks, or put some expensive dikes around his tanks, or to move his business out of town, or to force him to considerable expense of buying more land, or putting up more expensive buildings than he figured on for an addition. When that happens, the whole oil industry and every oil association must hop right to it at once to help him with his troubles. But until that happens, his usual thought is, "Why, no, I'm really not interested today—we get along very nicely with our fire chief and we don't have any of these troubles, the spacing of tanks and all that."

It's only by the brick dropping rather roughly upon oil companies' toes that oil companies have come to take an active interest in fire prevention. This is speaking of oil companies only in general. There are exceptions.

However, the fire prevention idea has developed enough in the oil industry and there is enough evidence of its development outside of the oil industry that there should be no further hesitancy on anyone's part to get into the subject, study it thoroughly and join in every co-operative movement to help matters.

At the present time, the American Petroleum Institute through a special committee of engineers, which is a subcommittee of the Institute's committee on Fire Prevention and Safety Engineering, is endeavoring to gather complete data on every oil tank fire in the history of the oil industry, so far as there are any records of it. This will be presented to a special board, representing the oil interests, the fire protection interests, and the fire insurance interests, with arguments to show that the distances between tanks and the type of construction of tanks that the oil industry recommends, are reasonable and give every safety possible to the public and that the distances and regulations that the fire protection interests recommend are excessive, unnecessary, and will only serve to increase the cost of doing business.

The services as well as the expense of the engineers working for the Institute, have been donated by several big companies for that purpose, so much do they appreciate the importance of the subject. These engineers are holding conferences in various parts of the country. They are also calling upon various oil companies by mail and in person to dig through their records and get this information. It is necessary to get this data completed and the case submitted within the next few weeks.

Many oil companies are co-operating. Every oil company should co-operate.

Just because you have not had to move your tanks or to bury them, or to put your tanks farther apart than you think is necessary, just because you haven't had to build a $23,000 embankment around a $14,000 fuel oil tank, as one oil company did, don't think that this does not concern you.

Your turn is next.

It's only a question of time when your plant will be regulated and that time is going to be comparatively short, only a matter of a very few years, when every oil plant in the country will be closely scrutinized by the authorities.

There is a national organization which draws up these regulations in conjunction with the interested industries. That national organization is trying to act fairly, but in order to act fairly it must have full information. The American Petroleum Institute is trying to supply that information.

Just because you, Mr. Oil Man, have not been regulated unjustly, so far, is no reason why you should not co-operate when called upon in this present investigation. Today is the time to help get fair regulations, otherwise, when your turn comes, a month, or six months, or two years from now, your tanks may be separated so far there will only be one to the acre.

Don't forget that your turn may be next.

So help with the investigation when called upon.—W. C. P.

Watch Your Credits

Seventy-five per cent of all cars now being sold are credit sales, according to President Cooper of the General Motors Acceptance Corporation, and he adds that 90% of the low priced cars are credit sales and 50% of the high priced cars, credit sales.

These figures should be a warning to every oil marketer to watch his credits. Oil companies are selling to the garages and dealers who are involved in these credit sales. The oil company should bear in mind that it is doing business with men whose financial resources are liable to be badly strained in handling their car sales alone. The more the oil industry can stick to a cash basis, the better, and this will be particularly true this year when margins probably will not be anywhere near as wide and comfortable as they have been in the last few years.

This spring and early summer will be a good time for oil companies to watch their credit, because dealers will be fairly long on cars and will be pushing their sale and it will be easier for them to run out of cash. Furthermore, the oil company should bear in mind that on these credit sales the balances that are still due on the car and the car itself are not subject to levy by the oil company because they are covered by mortgage held by the manufacturer or the finance company that is handling the credit sales for the dealer. The dealer may not even have an equity in the car to cover his commission—he may have taken that out in the early payment. So a dealer with $50,000 of accounts receivable on sold cars may be, so far as any creditor other than the finance company is concerned, as good as broke.—W. C. P.

ANNOUNCEMENT

For Pressure Lubrication Systems

Transmission and Differential

100% LUBRICATION

IT has taken several years of study, patience, hard work and money by Mr. Gibb to perfect a formula and design the process for the manufacture commercially of a compound that is a 100% Lubricant in *solid* and *semi-solid* form, free of mineral or fatty acids, impervious to water, and that will not cake or harden in the bearing grooves.

A Compound that is ideal for Transmission, Differential and Pressure Gun Lubrication in all kinds of weather—*Zero or Torrid*, and lubricate perfectly under these conditions.

The above are the salient points of this particular type of lubricant, yet Mr. Gibb in the past several years' experience has been able to improve upon this wonderful Lubricant, and in the new 5,000,000 lb. capacity plant now being completed by his company, will offer to you a product that will be compounded under conditions where *accuracy* and *uniformity* will be *positive* factors, due to the purchase of Raw Materials on Specification, *Thermostatic* control of temperatures and personal supervision by Mr. Gibb.

We earnestly solicit your inquiries for PEECO 100% Lubricants.

GIBB PETROLEUM CORPORATION

Manufacturers and Compounders

President	*Vice Pres.*	*Treas.*	*Sec.*
H. M. Gibb	Ira E. Wagner Pres. Lima Dime Savings Bank	A. D. Swinehart Financier	R. R. Trubey Treas. Artkraft Sign Co.

This greasing and oiling institution was built at a moderate cost by using a standard steel building with the sides all windows

Catering to the Oiling and Greasing Business Exclusively

By Paul Truesdell

N. P. N. STAFF WRITER

ALTON, ILL., Jan. 30

HOW far is an oil company justified in going into the business of greasing cars as a side line to its regular business?

Many a jobber has undoubtedly asked himself this question as he saw cars driving out of his station to go to some garage for greasing service, when he might just as well have had the business if he was in shape to take care of it. This is an indispensable service that every motorist needs and pretty nearly every motorist would rather pay somebody else to do than do himself.

The value of weaning the motorist away from the habit of asking for a quart of oil from time to time and getting him instead to drive over a pit or up on a rack to have the crankcase drained, perhaps flushed out, and filled with new oil, is now recognized by the industry generally and stations are comparatively few nowadays where some provision is not made for changing the motorists' crankcase oil.

This crankcase oil changing campaign, coupled with the slogan, "Change your oil every 500 miles" has undoubtedly had an important effect in diverting to the oil companies at their own stations, business that formerly went to the corner garage.

But the greasing business is harder to handle. Of course, the drain-rack or pit used for changing crankcase oil will do as a greasing rack as well and undoubtedly some oil companies are doing a good business in greasing, using no special equipment except these racks. But probably most companies, under average conditions, would find that undertaking to grease cars at the same station where gasoline is sold and crankcase oil changed, with the same crew handling all operations, would be unprofitable.

Some companies from time to time have tried it and for the most part they have given it up.

Because, greasing a car, even when equipped with Alemite or other pressure lubricating systems, is a laborious and time-consuming job. When a car drives up on the rack to have the oil changed, the station man removes the drain plug, a matter of a couple of minutes and lets the oil drain out thoroughly. This takes maybe five minutes or so. When the crankcase is drained, if the customer wants it flushed out, that is a matter of pouring the flushing oil in and waiting only a few more minutes for that to drain out. Putting in the plug and filling the case with new oil is not a long operation. With greasing, the case is different.

Greasing is Tedious Process

Once the car is up on the rack and the greasing has been started, he has to keep on until it is finished or the customer is likely to be impatient. The greasing customer will resent the station man laying down his grease gun while he waits on a gasoline customer. And the greasing takes quite a little time. A special man ought to be on the job to handle the greasing and oil changing exclusively.

The greasing business at the average station, however, would not be great enough to warrant the employment of an extra man and so it is likely to be a case of doing neither the greasing job or the job of gasoline selling up to the minute.

On the other hand, some companies have built special buildings for greasing purposes where this business was handled exclusively or perhaps in connection with the washing and polishing of cars. In some cases, at least, it has been found that the investment in site and building was greater than the greasing business that could be obtained would justify. In other words, the overhead and operating cost is too great for the volume of business that can be put through it.

There are the two extremes, the inadequate and poorly handled greasing facilities, which are unsatisfactory and the elaborate and too expensive greasing plant, on which it is impossible for the business to earn a fair return.

Between the two extremes most companies have feared to tread and so they have left this business pretty much alone.

But there is a jobbing company here in Alton that seems to have struck a medium point between the two extremes, and to have avoided the troubles of both. It is Correct Motor Fuels, Inc., which consists of two young men,

Edmond A. Gill, president and W. J. Carthaus, secretary-treasurer.

They have been in business only two years, but they have a lot of ideas and they have built up their business from almost nothing until they now have three bulk stations and seven filling stations. They did considerable thinking about the possibilities of the greasing business.

Do the Whole Job at Once

The answer to them seemed to be that if they could get the motorist to get his crankcase oil changed and his car greased at the same time and go to a central place to do it, they would have the game beaten.

Mr. Carhaus made a trip to some of the cities where jobbers were operating greasing racks of large or small scales and picked out the weak spots where he found them. He came home with his mind pretty well made up as to how the thing should be handled.

His company already owned an odd shaped lot at the corner of two main streets with a frontage of 200 or so feet on one street and about 100 on the other. They had a filling station directly on the corner and there was plenty of room at the rear of the lot, fronting on the other street and easy to get to, to build a greasing station.

They decided from the study of the greasing plants built by other companies that the building, if it was to pay, must be kept down as to cost. Mr. Carthaus had the advantage over some jobbers in that he possessed a thorough training in engineering.

So he designed the greasing station building and layout himself. He knew that the way to keep down building costs is to use a standardized building rather than hire an architect to design an individual structure that, whatever may be its architectural beauties, costs a lot of money.

He decided that a regular standard Truscon steel building, 40 by 28 feet would do, but he wanted more light than the ordinary building of that type afforded, so he specified that the side walls should be standard Truscon steel sash wired glass instead of the solid metal panels.

They decided that it was better to put a basement under the entire building rather than simply pits under the driveways. Consequently a concrete basement was constructed, the roof being a concrete floor for the building four inches thick. This floor is supported by four heavy concrete pillars.

This concrete work was by far the most expensive part of the construction, but Mr. Gill and Mr. Carthaus feel sure it has justified itself. They had decided, too, from their observations, that selling gasoline and oiling and greasing do not go together very well, so no gasoline is sold at the greasing building. There is of course, the filling station adjoining, where gasoline customers can be taken care of without gumming the works at the greasing station.

Two driveways enter the greasing station. The concrete curbs are rounded so that front wheels tending to slew sidewise are guided onto the tracks and each driveway is plainly lighted at night by a mushroom light set in the floor exactly in the center of the wheel tracks. The building is long enough so that four cars, two in each driveway, can be handled at once.

One side of the basement is partitioned off into an insulated room and in this room are located the seven square tanks that hold the various grades of lubricating oil handled. In winter the tanks that are used in summer for extra heavy oil are used for alcohol, in which a profitable business is done.

Big funnels on swing arms of two-inch pipe are placed under the driveways to catch the drained out oil and these swing arms lead into a header pitched on a steep slant so that the waste oil is carried outside the building to a buried tank from which it is pumped out as the tank fills up.

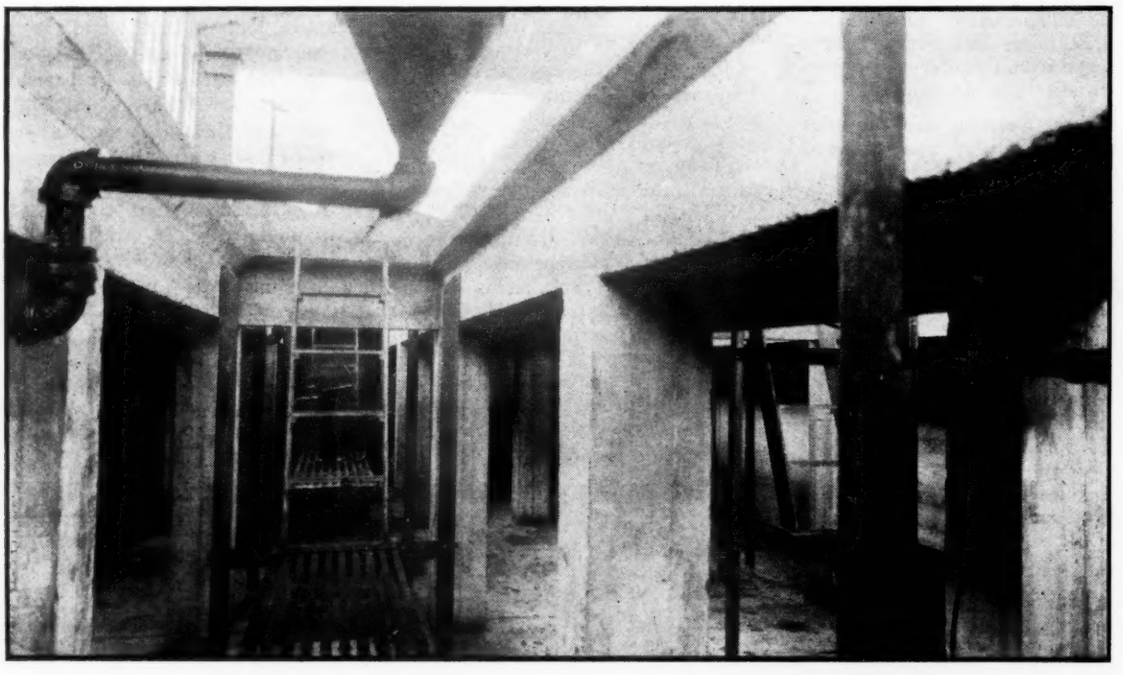
Being a chemist as well as an engineer (he was assistant chief chemist at the Wood River plant of the Roxana Petroleum Corp. before he and Gill went into business for themselves) Mr. Carthaus realized the possible danger of gas from the diluted crankcase oil forming an explosive mixture in the basement, because the gas was not easily carried away by the wind. Being a chemist, he also knew what to do about it.

Freeing From Vapors

He placed drain pipes under the floor with a number of screened openings in the floor and connected them with a pipe leading into a nearby creek. The pipe is laid under water and parallel with the course of the stream, so that the water flowing past its mouth exerts a siphoning action that keeps the basement from vapors.

On the floor of the building above, is the office, partitioned off and comfortably heated. Here are the lines from the oil tanks and the cash registers, specially made registers, designed to show the amount of money taken in in each transaction and the exact service rendered for each man, there being two men at the station.

Gill and Carthaus realized that if they were going to get the public to trust the greasing of their cars to the greasing station, they must have ex-



Showing construction of basement of greasing and oil building. A special arrangement provides for removing any inflammable or obnoxious vapors

perts in greasing on the job. They took the shortest and most direct way to accomplish this. They picked two likely young men and sent them to the headquarters of the Bassick Manufacturing Co., in Chicago, the manufacturers of Alemite guns and grease cups. The men stayed there long enough to know all there was to know about the greasing business.

And those men are running the station now.

The station, as it now stands, represents an investment of about $14,000. This includes the lot on which it stands, building and all. It seems not unlikely that in the course of a few years, the lot alone may be worth more than that.

Having brought the station near to completion late last summer, Gill and Carthaus began to tell the public about the service they were preparing to offer.

They bought space in the daily paper of the town, featuring the "Lube-Serv-Atory," as they named the greasing station. These ads carried nothing about gasoline whatever. They were devoted merely to selling the motorist on the fact that there was a greasing station ready to take care of his oil and grease needs and emphasizing, "We are experts in lubrication."

One ad was headed, "Don't mix clean oil with dirty," and went on to say: "Even if you use the best motor oil in the world, after driving a few hundred miles, your crankcase is bound to show an accumulation of worn oil and sediment.

"Clean oil poured in on this can't help being fouled and impaired as a lubricant from the start.

"Don't wait—Drive in today."

Another ad was headed with the appeal, "Let us do your dirty work for you. Here you pay only for the oil and grease. No labor charge."

Most of the ads carried pictures playing up the neat and attractive appearance of the Lube-Serv-Atory.

Lubricating oil storage is carried in a separate room from the rest of the basement, shut off by a concrete wall. This storage is filled by pipes extending from each tank outside the building, so that patrons and operators at the station are in no wise inconvenienced during filling operations

In addition, a letter was sent out to a mailing list of motorists, as follows:

"The Lube-Serv-Atory" is a modern building constructed out of concrete and steel and glass to provide expert lubrication service, and with it comfort.

"Here you can have your car efficiently lubricated in a few moments by trained men, who will have nothing else to look after. No more driving up on an obsolete rack.

"There are two drives, each capable of serving two cars at a time. A swinging basin catches the drained oil and prevents any dirty condition.

"A service feature that will be appreciated by all who take advantage of it, will be the follow up system whereby all cars served will have their speedometer recorded. The Lube-Serv-Atory will inform the owner as to the work done, and again, 30 days later, will suggest that if his car has gone 500 miles the safe thing to do is to have it examined at the Lube-Serv-Atory.

"Everything possible will be done to make it easy for the motorist to keep his car lubricated, not merely oiled, so that all the moving parts will last as long as they should last. This service will save a considerable amount of money in repair bills, wornout parts, etc.

"No charge for labor. Flat rate system exclusively.

"We know that, if you inspect the Lube-Serv-Atory, you will give it a trial and we know the service you will get there will make you a permanent friend. The ladies will find a rest and lounge room with a few magazines where they may pass the time while their cars are being lubricated."

As they said in the letter, Gill and Carthaus established a fixed list of prices for various operations as follows:

A Fixed Price List

Crank Case Oil

Light, medium, heavy, per gallon	$1.00
Extra heavy or Fordoil	1.20
Liberty Aero	1.40
Flushing oil	.25

Transmission

Replenishing, per pound	$ .30
Clean and re-fill	1.20

Universal

Replenishing, per pound	$ .30

Differential

Replenishing, per pound	$ .30
Clean and re-fill	1.50

Oil, Grease Cups and Holes

Ford	$ .50
All others without pressure system	1.50

(Continued on page 64)

Danger **Danger**

Six Weeks Ago---!!

We Lubricated Your

Alemite	---	Chassis	---
Transmission	---	Springs	---
Differential	---	Universals	---
Crankcase	---	----------	---

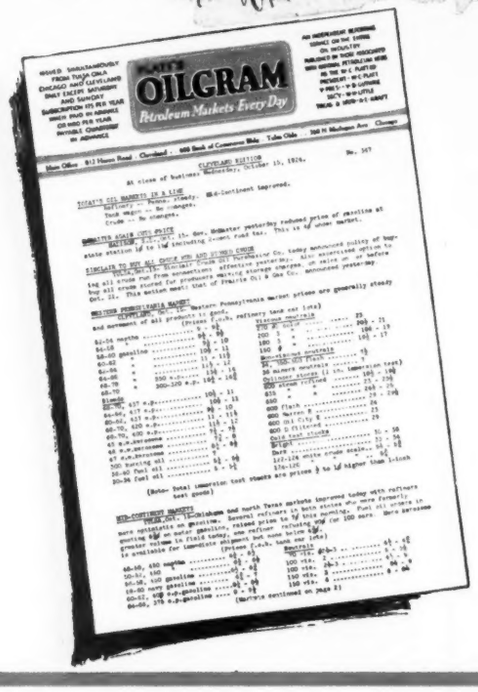
We take the liberty of reminding you that oil becomes diluted and thinned out after 500 miles of driving. Your speedometer reading six weeks ago was.....miles.

"LUBE-SERV-ATORY"

CORRECT MOTOR FUELS, Inc.

This is the fourth follow-up card sent to a car owner whose car has been oiled and greased at the "Lube-serv-atory." The words "Danger" and "Six weeks Ago!" are in red ink

Have the Days Oil Market Telegraphed to your Desk


PLATT'S
OILGRAM
Petroleum Markets Every Day

KEEP in touch with the rapidly changing oil markets these days by an accurate daily and telegraphic service.

PLATT'S OILGRAM gives all price changes by wire—if you want them—on crude, refinery and tank wagon in all districts.

It's saving money for oil executives everywhere.

Issued simultaneously every market day from Tulsa, Chicago and Cleveland.

Protect yourself against market changes. ORDER YOUR SERVICE TODAY.

PLATT'S
OILGRAM
Petroleum Markets-Every Day

Also WIRE collect price changes in:

CRUDE..... *T. W.*.....

The W. C. Platt Co.
800 Caxton Bldg., Cleveland, Ohio

Send PLATT'S OILGRAM to me at once. Enclosed is $25 for three months, or $75 for one year.

Send the service from Tulsa....., Cleveland.....
Chicago.....

Signed .....

Address.....

.....

Loose Thinking and Loose Talking

By Warren C. Platt
Editor, National Petroleum News

THE oil industry is cutting its own throat in several ways with all this loud talk about "too many filling stations". Every one in the industry, including producer and refiner, is pointing his finger at the large number of filling stations and declaring they represent a "terrible waste", just as if most of the ills of the oil business were due to their existence.

These men, and the marketers too, should stop for one minute and do a little thinking.

What is there in this world that there is not really too much of from a strictly competitive standpoint? The farmer is always growling about too much wheat. The cotton planter has the same story, so has the merchant, the minister, the doctor, the lawyer and now, with a bare handful of kings left, we say there are too many of them.

The so-called "too much" of a thing is the ambitious effort of every man to get ahead and do a little better than every other man. The world is pretty well satisfied that is the only theory to operate upon. Russia is trying the contrary but not succeeding very well, and she won't. Human beings differ and, as long as they do we are going to have too much of everything, looking at it from a narrow competitive economic standpoint.

If you are not going to have "too much" of a thing how are you going to decide who shall have the privilege of operating under the public's franchise, for that is just exactly what will be done. Limitation of competition means public regulation and public franchises. What are going to be the standards and who will enforce them and how, for determining who shall run the dry goods store of the town, the meat shops and at what locations, the garages, the churches, the doctors and lawyers offices and so on without end?

Some people point to all the filling stations and say what a waste of money and even how it will cost the public, as if the public will have to pay for the waste.

The public won't have to pay for it, in the sense of having to pay more for its gasoline. The "waste" stations, if any, will come out of the public's pocket only to the extent that they will absorb the savings which have been accumulated from other but efficient business activities. These extra stations won't raise the cost of gasoline to the public a single tenth of a cent. In fact they reduce the price.

These stations are a distinct asset to the oil industry, even though they are not an asset that a business man should invite. But now they are here let's try and see them as assets.

Evidence of Competition

The public has long thought there was no competition in the oil business. These "waste" filling stations are the best evidence—at a time when we need the evidence shouted from every street corner, that there is competition of the severest kind, a competition for the public's business at the lowest possible cost. The man who can operate the most efficiently and make the lowest price to the public—all things considered—is the one who will get the public's business and he is the one who will deserve to have it. If each man didn't have to fight for his life, he wouldn't get his costs down as low as he should. Necessity is the mother of invention and the mother of efficient operation. Luxurious prosperity certainly is not.

Besides, who knows that they are "wasted"? Why are they too many? Today they may be, but how about tomorrow? We have had almost a 20 per cent increase in gasoline consumption every year, that means 1,600,000,000 more gallons of gasoline will have to be moved this year—1925—than was moved last year. From every indication today there will be enough more automobiles and enough greater operation of trucks busses and passenger cars to assure some such increase this coming year.

Allow an average daily gallonage of 1000 gallons to each station—call it 300,000 gallons a station per year—a most handsome gallonage—and the additional business for 1925 will operate at least 5000 stations most profitably, stations that haven't been doing a cent's worth of business in 1924. As the average profitable gallonage per station is less than that, the chances are there will be **additional** business this year for at least 10,000 new stations, and old stations that didn't sell a gallon last year.

"Too Many" of Most Every Thing

It's been "too many" of most everything that has made the world go around. Ten years ago there were too many producers with too many wells and too much oil in the Mid-Continent, but it all worked for cheap crude which permitted "too many" refiners to get into the business who otherwise wouldn't have come in. These "too many" refiners made too much gasoline and other products which permitted "too many" jobbers to start up, and they in turn have built "too many" filling stations now. Most of the oil men never would have started if this had not been true.

There have, of course, been too many of all groups right down the line for the business itself. It would have been nicer for everyone could the number of been limited in some fashion, so that only the exact number that would have permitted the maximum growth of the business at a reasonable profit could have come into existance But nature doesn't work that way.

But from all this "too many" of all things we have a greater industry that is affording a living to millions of people. In every branch of it we can show from even our short history that it is an industry of the survival of the fittest; that the big company has no soft bed to lie on, but must be hammering away at better methods and lower costs all the time. The chief incentive to this low cost is the keen competition of "too many" of all.

Look at the successful men and companies in every branch of the industry. Most of them from producers down to marketers, came into the business when there were "too many" of their number. Some died but those who live today were the ones who had more efficiency, more diligence, and did more hard work than those who failed to last.

All this is not an argument in justification for each individual's having entered the business when common sense should have told him to go slow, that there were "too many" in it all ready. But it's the way the world grows and the oil men have done too much moaning and wailing about it.

The above thoughts are not intended in any way to include such a discussion as that, for example, on the refining capacity of the country which was prepared by Harry H. Smith, secretary of the Mid-Continent Oil & Gas Assoc., and appeared in the Dec. 31st issue of this publication, for the consideration of the industry itself. Much can be gained by such discussions within the industry itself and practical good will come from them. It is the public's misconstruction, based on only a part of the facts, that are brought to its attention that puts the industry in a wrong light.—W. C. P.

"Waste" a Misunderstood Term

By William L. Russell,

Assistant Geologist, North Dakota Survey

Mr. Russell, who herewith gives his views on one phase of oil conservation, was formerly assistant geologist of the state of New York and made detailed studies of producing problems of that state.—Editor.

IN THE discussion relative to the recently-created federal board for the conservation of oil, there has been much talk about "wasteful drilling methods," without due understanding of what the term means. As a matter of fact, these so-called "wasteful methods" actually save oil, for by close drilling far more oil is recovered than by spacing the wells far apart.

It is generally accepted that when a pool is abandoned there is several times as much oil left in the ground as has been extracted. This gigantic waste of oils is far greater than all the others put together, though of course most of it is unavoidable. The investigations of the United States Bureau of Mines, published as United States Bureau of Mines Bulletins 194 and 228, show clearly the effect of close drilling on the recovery of oil. There is only a certain amount of energy in the gas pressure, which may be utilized either in driving a small amount of oil a long distance, through the sand, as when the wells are drilled far apart, or in driving a large amount of oil a short distance, as when the wells are spaced closely. There may be a few exceptions to these rules, as when there is water immediately below the oil, but there is no doubt of their general application.

According to the rule worked out by the United States Bureau of Mines, and based on a study of production figures in a large number of widely scattered fields, halving the distance between wells about doubles the total production per acre, and consequently the total production of a pool. Hence drilling the wells twice as far apart would mean that as much oil had actually been wasted underground as had been produced. Compared with this underground loss the other sources of waste sink into insignificance.

When the wells are drilled very close together, as in a town lot area where the so-called "wasteful drilling methods" are in use, the oil is conserved because more is recovered and the public benefits both by the increased quantity and by the lower price. Hence any attempt to benefit the public by limiting the number of wells drilled to the acre would be based on a thorough misunderstanding of the conditions.

For every property there exists a certain well-spacing which will balance increased production against drilling costs so as to give the maximum profit to the oil company operating the lease. This spacing varies with the porosity, thickness and coarseness of the sand, and with a host of other factors, which vary from pool to pool, and even from lease to lease. Because of a lack of understanding of these factors, this optimum well-spacing is not known for each tract, and doubtless there are many properties in which the wells are spaced too far apart, and it is to the interest of the public and the oil men alike to eliminate these areas.

It would obviously be absurd to attempt to regulate this by general laws, for it varies enormously from place to place. With the present methods used in the Bradford field, it is necessary to drill two or three wells to the acre; in other pools, only one well to ten acres. No oil commission or other government bureau, however efficient, could hope to determine this most efficient spacing for each lease in the United States, but a thorough investigation of the underlying principles, would enable the oil men, through their experts, to determine this spacing for themselves.

The BALANCE of POWER 48-17-18

THE strength of a publication lies in the manner in which it serves its readers—the news it prints for them, the accuracy and ability with which that news is written and the speed with which it is gotten into type and before their eyes after it becomes news.

National Petroleum News holds the Balance of Power over other oil papers by the above ratio in its covering of the annual convention of the American Petroleum Institute at Fort Worth last December.

Here was the most important meeting the oil industry holds. More is actually accomplished in furthering the big things on which the industry is working as a whole, such as standardization or field equipment, for example, than during the entire rest of the year. Here the leaders of the business discuss the problems confronting the industry.

National Petroleum News devoted all told over 48 pages to reporting that convention. Some ten pages of that was news telegraphed from Fort Worth to Cleveland to place it before the industry before the sessions there were closed. The two other weekly oil papers devoted only 17 and 18 pages respectively to that convention.—Editor.

High Cost Expert Views Price with Alarm

CHICAGO, Jan. 30.—Joseph Rushkewicz, city high-cost expert, has been conducting an investigation of the cost of domestic fuel oil. And after a lot of hard work Mr. Rushkewicz broke into the Chicago daily newspapers with the alarming statement that fuel oil advances in price in the winter time, when it is in demand. He says it is simply a case of the oil men making their "picking while the picking is good."

The investigation closed about Jan. 12, which was just before the crude oil price structure all over the country started to be revised upward. The most generally accepted reason for these advances is the fact that all oil fuels have been in such unusual demand this winter. Mr. Rushkewicz confirms that belief and condemns it. These are his remarks:

> Fuel oil with 32 to 34 gravity that has been sold to the people for 6½ to 7 cents per gallon has been boosted to 9 cents a gallon. Where 15 gallons of this same oil cost the public $1.05 in September and October, it was raised to $1.35 in November and December, or a boost of 22 per cent."

His discourse said something about the price of coal fluctuation in the winter the same as oil, but he alleged that several complaints had been made to his department about oil costing more in winter than in summer. That was the reason for the investigation. He advised all persons burning oil in Chicago to be ready at any moment to convert their furnaces back to coal, if oil prices should get too high.

In order to give Mr. Rushkewicz credit for his experience and previous research in the petroleum industry, it will be remembered that he did some work along that line last summer. It was in July while all the city officials were in New York at the Democratic National Convention that he threatened to start Chicago in the oil business if the price of gasoline did not come down.

Governor W. H. McMaster of South Dakota discovered this unusual gaso-

Get These Bohannon Advantages

In an Accurate, Dependable Kerosene Dispensing Unit. Pumps a Gallon at a Stroke.

Some features are common to all kerosene pumps. Others are found only in the Bohannon Kerosene Pump Outfit. The three most important of these features are:

Cylinder Machined and Ground

The cylinder on every Bohannon Kerosene Pump is machined with minute care. It is then ground to a degree of smoothness that nears perfection. It is the extra pains taken in grinding the cylinder, that makes our special piston ring plunger accurate and dependable under all conditions.

Piston Ring Plunger

The plunger is fitted with two step-cut piston rings. Frequent plunger replacement, an annoyance common to pumps equipped with leather plungers, is eliminated by this special Bohannon construction.

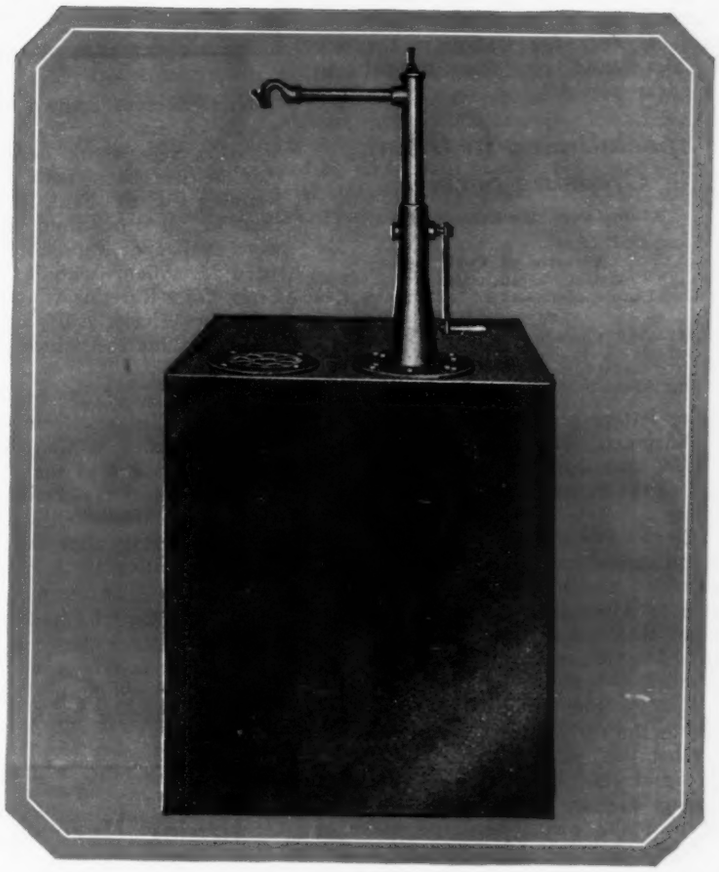
Enclosed Gears

Gears are completely enclosed, making the appearance of the Bohannon Kerosene Pump Outfit measure up to its dependability. All gears are steel-cut and heat treated.

Write for Estimates

With a comparatively small investment you can materially strengthen your kerosene marketing with Bohannon Kerosene Pump Outfits. State your quantity requirements, and we will be glad to submit estimates.

Des Moines Foundry & Machine Company
Des Moines, U.S.A.



K-2120—One of Four Types

Bohannon Kerosene Pump Outfits are made in four types, each delivering a gallon at a stroke. The types include barrel and two-barrel sizes, either square or round. Shown above is the K-2120, square design, two-barrel capacity. This tank is 32 inches high, the base 30 inches square.

Bohannon Tanks are built unusually strong. They are made from 14-gauge steel, welded throughout, with reinforced tops.

Bohannon Kerosene Pumps are also made so that they can be attached to drums with nine-inch opening. When so ordered, they are furnished without tanks.

Also Used for Oil and Alcohol

In addition to its main purpose, as equipment for dispensing kerosene, the Bohannon Kerosene Outfit is used with lubricating oil. And for alcohol, which is often dispensed in gallon quantities, this pump, delivering a gallon at one stroke, is particularly adaptable.

BOHANNON SUPER PUMPS
FOR OILS, GREASES AND KEROSENE

line price situation early in April. Commissioner John Hopkins of Omaha made the discovery in May. Governor Bryan of Nebraska got it through his head in June. Mr. Rushkewicz saw the light in July. He was the individual who proposed to put a gasoline pump in front of every fire station in the city of Chicago and bring down the price to the "dear peepul."

Speciallizing in Oiling, Greasing Service

(Continued from page 59)

Hub caps all cars ..... .25

Alemite of Zerk

Ford, Chevrolet, Dort, Star.....$1.00
Dodge, Buick, Packard and all others 1.50

Springs

Penetrating oil, air or brush, Ford..$ .35
All others ..... .75
Alemite between springs..... 1.50
Filling Alemite spring covers, each.. .75

The letters and advertising brought the business. The station opened Sept. 6, 1924, and during the remaining 25 days of the month 600 cars had greasing service.

The news of the Lube-Serv-Atory began to spread and now there are a considerable number of motorists who come to Alton from surrounding towns to get their oil changed and their cars greased. One comes from St. Louis, 25 miles away.

The Follow-Up

After the car has been greased, a card is filled out showing just what was done and the charge, the speedometer reading and so on, together with the name of the owner and the make of car. The next day the owner gets a first card. If the car owner has not been back during the next 30 days, he gets a second card. If that doesn't bring him in, in another five days, he gets a card. Drastic measures are taken if he hasn't shown up in six weeks. He gets a card, with the words "Danger" and "Six Weeks" in red ink.

If there is no response for eight weeks, the customer is written a personal letter asking why with a stamped addressed envelope for a reply.

No one of these personal letters so far has failed to bring a reply.

One woman, on receiving the six weeks card with the warning of danger in red letters, called up in great alarm to explain that she had not driven 500 miles since the last change of oil and asking, if that was the case, was the car in danger.

The Lube-Serv-Atory puts on each car's speedometer when the oil is changed, a vaccum cup button with the speedometer reading marked on the blank space in pencil. This is better than a sticker, Carthaus and Gill believe, because it does not cover up any of the speedometer readings and the mileage can be erased and the new figures put in when the oil is changed again. And when properly put on, these buttons do not fall off.

The plan seems to be working and Gill and Carthaus believe that with the coming of summer it will pay them a good return on their modest investment.

HERE AND THERE

W. C. Reeves, known better in Minnesota oil trade circles as "Curly Bill" boasts a record not only for the fact that he has been with the Craig Oil Refining Co., St. Paul, for 25 years, but that in all that time, he has never worn a hat or cap, according to Edward M. Allen, who is also with the Craig Oil. But this winter proved too cold for "Curly Bill" and he is now wearing a fur cap which was presented to him.

* * *

H. F. Rheiner, formerly with the Sinclair Refining Co., has been appointed manager of the Jamestown, N. Y. district for the Pennzoil Co., Buffalo. Mr. Rheiner will take up his new position shortly after the first of February, according to A. S. Matthews.

* * *

W. H. Ray, formerly New Jersey district manager for the Tide Water Sales Corp., is now eastern department manager, according to J. C. Marsellus, agent at Paterson, N. J.

Junior Here & There

Another happy father in the oil industry is Joseph F. Giefer, office manager of Graig Oil Refining Co., St. Paul, Minn. A bouncing baby boy arrived at his home recently, which fact has kept "Joe," as he is familiarly known, busy buying cigars, according to Edward M. Allen, employe of the Craig company.

* * *

A nine-pound baby boy was born on Jan. 23 to Mr. and Mrs. J. F. McCarthy, Buffalo, N. Y. Mr. McCarthy is Veedol salesman in Niagara Falls and vicinity, according to F. W. Clark, branch manager at Buffalo for Tide Water Oil Sales Corp.

* * *

A nine-pound daughter arrived at the home of Mr. and Mrs. R. E. Burgstahler at Gaylord, Minn., on Dec. 20. Mr. Burgstahler is agent at Gaylord for the Community Oil Co.

* * *

A daughter was born to Mr. and Mrs. Norbert Leifermann, Buffalo Lake, Minn. recently. Mr. Leifermann is proprietor of a newly-completed service station at Buffalo Lake.

* * *

On Dec. 22 J. W. Johnson, branch manager at Montevideo, Minn. for The Pure Oil Co. welcomed the arrival of an eight pound baby girl at his home.

Mrs. L. E. Walch, private secretary to R. E. Ellison, vice president of the Midwest Refining Co., Casper, Wyo., has resigned and moved to Independence, Kans. Mr. Walch, who was engaged in activities at Casper, has left for Tulsa where he will be joined by Mrs. Walch, according to D. W. Greenburg, publicity director.

* * *

Harry E. Morse recently purchased his partner's interest in the Brunswick Service Station, Tacoma, Wash. The station handles General gasoline and Hyvis oils. C. E. Culoer, distribution manager of the Allen Lubricating Co., says "Harry's smile combined with his advertising campaign is an assurance of his future success."

* * *

J. P. Cruden, district sales manager at Walla Walla, Wash. of the Standard Oil Co. of California, called a meeting of the sales force of the Yakima Valley district which was held at Yakima, Wash., on Jan. 20, to discuss sales policies for this year, according to G. W. Walker, special agent at Yakima.

* * *

William D. Weathers, president of the Fargo-Western Oil Co., Casper, one of the large operators in black oils in Wyoming, has gone to New York on a business trip, according to D. W. Greenburg, publicity director of the Midwest Refining Co. Casper.

* * *

Weir R. Goodwin, formerly subagent at Columbia, S. C. for the Standard Oil Co. of New Jersey, was promoted to district manager on Jan. 1, according to Pierce Van Vleck, district manager at Greenville, S. C.

* * *

Lee Erickson, formerly general agent for the Continental Oil Co., Ogden, Utah, has been transferred to Logan, Utah, as district superintendent. Earle B. Van Winkle, of Monrose, Colo., succeeds Mr. Erickson at Ogden.

* * *

T. P. McKee, Jr., formerly with the Sun Oil Co. and Tide Water Oil Sales Corp., as dealer helps supervisor, has become advertising and sales promotion manager with the Co-Service Oil Co., Newark, N. J.

* * *

Sherman T. Kline, Minnesota sales representative for the Craig Oil Refining Co., St. Paul, Minn., is back on the job after a several months' siege of illness, according to Edward M. Allen.

* * *

E. R. L. Boyd, district manager of the Waverly Oil Works Co.'s Wichita, Kan. offices, is on an extensive trip through Nebraska and Iowa.

COMPLETE NEWS INDEX FOR JANUARY

HEREWITH N. P. N. publishes a detailed index of all articles appearing in its January issues, outside of routine department news which the reader will have little difficulty in finding in back issues because of its relative same position in each issue.

The indexing has been done by using the heading for the article, or at least enough to identify the article.

This departure is offered by this publication because of the insistence of many readers that they be given some form of index. If readers who save their issues of N. P. N. for reference purposes will tear out these pages and file them they will have a complete index to all articles appearing in its news pages outside of routine department news.

Readers will also notice that each issue carries on its second news page a short index of special articles and giving the pages on which all departments are to be found. This complete index is offered for reference purposes only, to be torn out of the issue each month carrying it and filed. If the form in which it is here offered can be changed, or new listings introduced to make it of greater reference value to readers, the editorial staff will appreciate it if the readers will give their suggestions along this line.—Editor.

	Issue	Page
General News		
There is danger in regulation—H. J. Smith	Jan. 7	26
Oil trademarks for copyright	Jan. 7	76
Auto production in November	Jan. 14	69
Oil patents issued in November	Jan. 14	83
Oil conservation board opens offices	Jan. 21	18
Monaghan, Galey views on conservation bd.	Jan 21	21
Conservation board sends letter to 33	Jan. 21	22
Oil trademarks for copyright	Jan. 28	75
Marland of Mexico plans Houston office	Jan. 28	78
Marketing		
Coryell Co. incorporates	Jan. 7	20
Municipal gas station for Lincoln, Neb	Jan. 7	30
W. M. Welch Co. opens Tulsa offices	Jan. 7	30
Inter-State warehouse burns	Jan. 7	30
Johnson Oil builds fuel trade	Jan. 7	59
Nicholas warns against politics	Jan. 7	64
Mutual to build Denver office	Jan. 7	74
Shaffer buys Crenshaw interest in Home Oil	Jan. 7	82
I. Miller station sells 12,564 gallons on opening day	Jan. 7	107
L. L. Coryell sells out to Mutual Oil	Jan. 14	32
M. C. Brooke & Son to handle General line	Jan. 14	55
German Overseas Pet. opens U.S. Offices	Jan. 14	70
Oil cheaper than coal in home heating	Jan. 14	71
Armould truck tank outlasts four Fords	Jan. 14	78
Transcontinental buys stations	Jan. 21	26
Louisville refinery starts next month	Jan. 21	26
H. B. Gibb forms Gibb Petroleum Co.	Jan. 21	80
United American Oil "better service" station	Jan. 21	90
Quaker state oil wall sheet on motor oil	Jan. 21	108
Yankee Filling Stations, new company	Jan. 28	60
Marland salesmen honored at meet	Jan. 28	68
Union oil men promoted	Jan. 28	76
U.S. Oil Works merges with Northwest Pet.	Jan. 28	78
Fourteen burners listed by Underwriters	Jan. 28	80
New York permits tank wagon deliveries	Jan. 28	101
Benzol consumption gains	Jan. 28	101
Refining		
Falls Refining acquires Bankers Pet. plant	Jan. 14	55
Home-made distillate treating plant—Art. 1.	Jan. 14	59
B. of M. shows 565 refineries	Jan. 14	74
S. O. Ohio reopens Toledo plant	Jan. 14	92
Mid-Continent fuel gravity being lowered	Jan. 21	25
New State refinery to operate	Jan. 21	38
Natural gasoline output up 61%	Jan. 21	52
Interior Oil & Gas refinery sold to H. A. Logan	Jan. 28	24
Mid-Continent Petroleum Corp. new name of Cosden	Jan. 28	27
Legislation, Litigation		
Seeks funds for Navajo leasing	Jan. 7	43
Burnett lands in receivership	Jan. 7	44
Receives report on Elk Hills lease	Jan. 14	55
Oregon planning 6c gasoline tax	Jan. 14	78
Refiners supported in merchant marine act fight	Jan. 14	81
R. R. commission loses in town drilling fight	Jan. 14	92
Legality of conservation board questioned	Jan. 21	17
Senate adopts Walsh report on naval leases	Jan. 28	21
Spencer's report justifies naval leases	Jan. 28	22
Argue to quash naval lease indictments	Jan. 28	22
Michigan anti-tax forces will continue fight	Jan. 28	24
Board looks to industry on conservation	Jan. 28	25
Gas tax opposes times, Ohio legislators told	Jan. 28	28
Grand Tax offensive on gasoline in many states	Jan. 28	28
Illinois, Oklahoma planning gasoline taxes	Jan. 28	30
High court holds Ozark pipe line exempt from state tax	Jan. 28	71
Associations, Conventions		
A.P.I. directors to meet Jan. 12	Jan. 7	20
Who are friends of the people—B. Barton	Jan. 7	69
W. P. R. A. to discuss special problems	Jan. 7	82
North Dakota jobbers organize	Jan. 7	92
A.P.I. directors to help oil conservation bd.	Jan. 14	17
Getting on dangerous ground—W. H. Gray	Jan. 14	23
Burner men to convene April 1-3	Jan. 14	55
A.O.M.A. perfecting convention plans Mar. 17.	Jan. 14	81
Determining gasoline vapor pressure—H. L. Shoemaker	Jan. 14	87
Wisconsin jobbers to use press for advertising	Jan. 21	23
Tulsa geologists elect 1925 officers	Jan. 21	24
Bovaird declines Exposition presidency	Jan. 21	26
Oklahoma jobbers convene Jan. 27	Jan. 21	26
Ohio jobbers to meet Feb. 26, 27	Jan. 21	26
A.P.I. accounting group organizes	Jan. 21	32
W.P.R.A. to discuss operating methods	Jan. 21	71
Michigan jobbers to hold record convention	Jan. 21	75
Colorado oil men form club	Jan. 21	76
Chemical society elects officers	Jan. 21	76
Michigan jobbers meeting record breaker	Jan. 28	23
Oklahoma jobbers meet	Jan. 28	30
B. Blue heads Lessee's association	Jan. 28	39
Okmulgee O. & G. Ass'n to broadcast oil program	Jan. 28	40
Safety council elects officers	Jan. 28	42
N.P.M.A. has service department	Jan. 28	60
New England jobbers have first annual meet	Jan. 28	60
Burner men meet April 1-3	Jan. 28	60
Filling station good place to tell story	Jan. 28	63
Transportation, Rates		
May get lower gas and fuel rate in East	Jan. 7	81
Rules for shipping ethyl chloride	Jan. 7	90
Pig iron rates cut 15%	Jan. 14	48
No increase in Smackover crude rate	Jan. 21	72
I.C.C. considers rate on crude—casinghead	Jan. 21	79
Statistics		
Strong market for burning oils	Jan. 7	18
Mid-Continent refinery operations	Jan. 7	21
November crude report; change over October	Jan. 7	47
November refinery figures in California	Jan. 7	52
October exports, and 10 months of 1924	Jan. 7	74
Mid-Continent refinery operations Jan. 9	Jan. 14	18
November refinery statistics	Jan. 14	32
November exports and 11 months	Jan. 14	40
Prairie shipments for December	Jan. 14	40
Los Angeles shipments	Jan. 14	42

(Continued on next page)

COMPLETE NEWS INDEX FOR JANUARY

(Concluded from preceding Page)

	Issue	Page
British importations	Jan. 14	107
Mid-Continent refinery operations, Jan. 16	Jan. 21	20
World gasoline prices exceed U. S. prices	Jan. 21	32
British importations	Jan. 21	107
Mid-Continent refinery operations, Jan, 23	Jan. 28	20
California stocks up 1,000,000 barrels	Jan. 28	42
Gasoline consumption high	Jan. 28	68

Articles on Prices

Ohio price structure continues upset	Jan. 7	20
Refiners averaged 1c less on gasoline	Jan. 7	81
Ship Board gets more fuel oil bids	Jan. 7	82
Fuel oil contracts at foreign ports	Jan. 28	27

Editorials

Is Dr. Work playing politics?	Jan. 7	29
Boyce pares his claims. Explanation needed	Jan. 7	53
Don't censor thought of industry	Jan. 21	29
A generous gift to the industry. Post tax separately	Jan. 21	53
March openly down center of street	Jan. 28	32
Tell the royalty owner. On business luxuries. Boosters against LaFollette	Jan. 28	51

Supply and Equipment Notes

Hughes Co. capital now $2,000,000	Jan. 7	44
Lucey Mfg. Co., Tenn., not in bankruptcy	Jan. 7	64
Industrial Notes	Jan. 14	85
Worth Tool Co. formed at Ft. Worth	Jan. 14	92
National operates pipe plant at Gary	Jan. 21	32
Graver Corp. sells Jenkins process	Jan. 28	38
Wayne Tank to make oil burners	Jan. 28	107

Personals

C. E. Reed goes to New York	Jan. 7	18
F. B. Cohen dies	Jan. 7	20
M. D. Robinson dies	Jan. 7	30
A. L. Guiberson back from Europe	Jan. 7	44
G. G. Oberfell with Phillips Co.	Jan. 7	48
C. T. Collings, S. O. Kentucky chairman, dies	Jan. 7	64
Dr. Norman Bridge dies at 80	Jan. 14	24
E. E. Allen, cornplanter founder, dies	Jan. 14	32
R. D. Gwynne, Gypsy purchasing agent, dies	Jan. 14	40
J. H. Jones dies	Jan. 14	40
Clint Moore dies	Jan. 14	42
F. B. Henderson, L. J. King, vice-presidents Associated	Jan. 14	42
E. O. Garrett, secretary of Elliott Jones, dies	Jan. 14	45
E. J. Sullivan, a builder of industry	Jan. 14	55
A. B. MacBeth, president Chamber Mines & Oils	Jan. 14	66
A. L. Davis, chief chemist with Empire	Jan. 14	81
A. P. Bjerregaard doing research work	Jan. 21	21
H. H. Fleming manager of Oil Conservation Co.	Jan. 21	22
S. C. Thompson dies	Jan. 21	38
R. A. Cattell, superintendent Bureau station	Jan. 28	38
F. H. Emig in charge of N.P.M.A. service	Jan. 28	60
W. W. Nicholas with Marvel	Jan. 28	60
M. G. Gulley	Jan. 28	71

Engineering and Technical Articles

Standard buys interest in Ranney process	Jan. 7	43
Welding outfits reduce equipment costs	Jan. 7	73
Deep drilling in Appalachian fields—H. C. Cooper	Jan. 7	85
Conservation board names technical sub-committee	Jan. 14	20
Technologists and oil men's opinions invited by Work	Jan. 14	22
Hughes Tool laboratory equipment for testing tools	Jan. 14	43
Lightning protection of agitators—Art. 2	Jan. 21	59
Lightning greatest factor in fire loss—R. J. Reed	Jan. 21	62
Conservation of natural gas in drilling—Stoughton, Frevert, Warthen	Jan. 21	83
Melting paraffin in wells successfully	Jan. 28	55
A.P.I. surveys fire protecting oil tanks	Jan. 28	65
Skimming plant makes money—Art. 1	Jan. 28	66

Production

Mid-Continent (including Louisiana-Arkansas)		
No man's land still in western Oklahoma	Jan. 7	32
Initial output better in Shreveport area	Jan. 7	47
Shongaloo test is dry gasser	Jan. 7	37
Prairie geological department has 9 men	Jan. 7	38
Davenport test full of oil	Jan. 21	25
Showing of oil found in Columbia Co.	Jan. 21	37
Cotton Valley field quiet	Jan. 21	37
Summary of Oklahoma 1924 production	Jan. 21	41
Magnolia pipe line runs in December	Jan. 21	42
Prairie crude increase brings changes	Jan. 28	17
Cromwell extension flowing	Jan. 28	36
Oklahoma safety rules effective April 1	Jan. 28	41
Shaffer adding pipe line capacity	Jan. 28	47
Texas		
Humble builds pipe line into Big Lake	Jan. 7	17
Wortham, an oil field in the making	Jan. 7	20
New deep pay at South Vernon	Jan. 7	38
Wortham opens week with 117,000 barrels	Jan. 7	39
South Dayton salt dome makes oil after 20 years	Jan. 7	40
Burnett lands in receivership	Jan. 7	44
Wortham to reach peak in 12 weeks	Jan. 14	25
Wortham making 150,895 barrels	Jan. 14	27
Tabloid history of Wortham	Jan. 14	29
Texhoma extends line to Young Co.	Jan. 14	37
Texon completes big well in Reagan Co.	Jan. 14	37
Wortham well averages hold high	Jan. 21	38
More east Texas pools to come after Wortham—Art. 1	Jan. 21	45
Drop in Wortham's output discounts future effect	Jan. 28	37
Wortham's high mark passed	Jan. 28	38
Move to use gas for carbon black	Jan. 28	42
Big Indian to drill in Cook county	Jan. 28	42
Search for east field like solving cross-word puzzle	Jan. 28	43
Texas Co. buys two properties	Jan. 28	48
Rocky Mountain		
Water from artesian well piped to Salt Creek	Jan. 14	67
New survey report on San Juan area	Jan. 21	48
Routt county pool to be producing area	Jan. 28	39
California		
Ocean Heights dome may be tested	Jan. 7	37
Union brings in 41 wells in 1924	Jan. 7	38
Strike near Ventura may mean new field	Jan. 7	43
1924 production down from 1923	Jan. 28	80
Eastern		
Tide Water adjusts crude temperature to 60°.	Jan. 7	37
Kentucky production for November	Jan. 28	48
Oklahoma Eastern to merge with Devonian Oil	Jan. 28	48
Foreign		
Australian desert basins not promising for oil	Jan. 7	22
Survey men return from Alaska reserve	Jan. 21	67
International gets well in Colombia	Jan. 28	48
General		
New lease form Indian lands adopted	Jan. 14	24
Appraisal oil and gas properties, Johnson, Ruedemann	Jan. 28	85

(Second and Concluding Article)

This Skimming Plant Makes Money Year In, Year Out

By Paul Truesdell

N. P. N. STAFF WRITER

CLEVELAND, Jan. 31

THE wisest financial and marketing policies and the most skilled and efficient operating methods that can be worked out don't amount to much unless the right men are on the job to carry them out. And that is another reason, probably for the success of this particular refinery under discussion. The way it handles the labor problem is to have the right men on the job and not too many of them.

The plant as it is operating now, running 7000 barrels a day, employs a total of 55 people. This includes everybody from the president of the company down, office force and all.

"We don't believe in having a big labor turnover," said the vice president and general manager of the company. "A good many of our men have been working for us for 10 years and quite a few for 15 years.

"By the time we have hired a man and broken him into his job we figure that we have an investment of $2000 in him. If he leaves, that $2000 is a total loss. A big turnover, constant losses of investment put into hiring and training men, that one thing alone can break a company in time.

"When a man has learned to do one job well here, we show him how he can do something else in addition, not only making more money for us but making more for himself as well. We have found that men would rather be busy all their working time than loafing part of it if the extra effort is appreciated and paid for.

Better Pay, Better Return

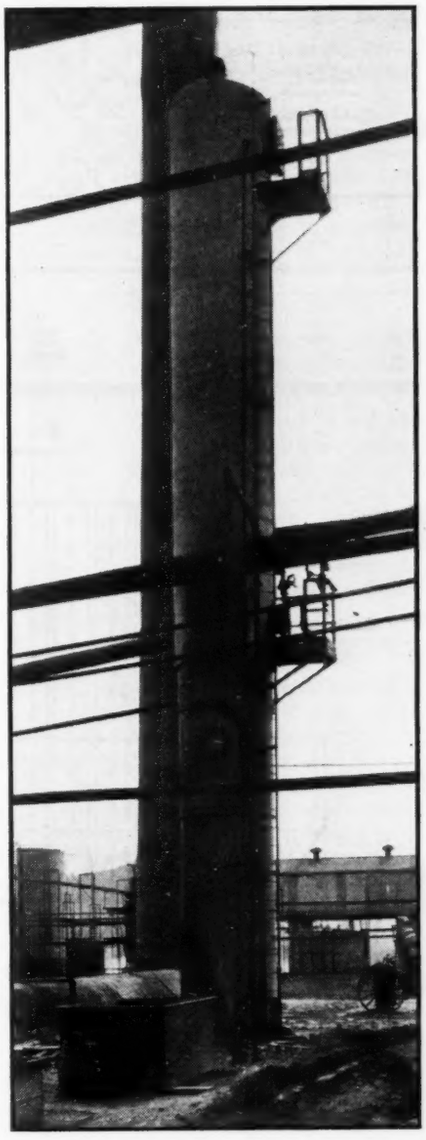
"We pay our men more than they get for similar jobs in most other refineries but we get better returns from them. The men get paid better for giving us a better return so everybody is benefited and our men stay with us."

This company trains up its own men for the higher executive positions. "We have had no luck in general with bringing in outside 'experts' and we long ago gave it up," said the president.

While the management of this refinery has steadfastly refused all through its life to increase plant investment by installing more primary equipment to increase its capacity, it always has its ear to the ground for devices and developments in practice that will give increased efficiency of operation from the equipment already on the ground. And it doesn't hesitate to spend money to put in such equipment. In other words, it follows an intensive instead of an extensive policy. But they don't put in such devices until they are proved.

About a year ago, for instance, they installed Lientz patent furnaces under their boilers. They have found that in over a year's use the furnaces have saved between 15 and 20 per cent of the fuel that formerly was charged to boiler operation.

In view of the showing made by the Lientz furnace under the boilers, the company is now installing them under the stills. For the stills, they are combining the Lientz furnace principle with the Dutch oven type of firebox, regarded by many refiners as much more efficient than the fire box flush with the face of the still setting, both from the standpoint of heating efficiency and of preventing rapid burning out of the fire sheet of the still.



This is a Cross-Widdell bubble tower of the type described. The working part of the tower begins where the railed platform gives easy entrance to the manhole which can be seen in the picture. Another manhole near the top, also provided with a platform, can be seen

The Dutch oven allows a longer flame travel under the still, and at the same time, if properly baffled, prevents the flame from striking directly upon the still bottom with the consequent tendency to form hot patches and burn out the bottom plate.

The Lientz furnace is not new, according to its inventor, B. P. Lientz of Kansas City, having been used for several years in some boiler plants, but it is practically a new thing so far as the oil industry is concerned.

While the efforts of combustion engineers and power plant efficiency experts for years has been directed mostly to the conservation of heat by preventing its waste through uninsulated surfaces, Mr. Lientz has attacked the problem of burning the fuel itself in the most efficient manner.

The vital principle in his furnace is to preheat the air needed for combustion. In the ordinary furnace, of course, the air for combustion is drawn into the furnace at the atmospheric temperature of the boiler house, or of the great outdoors in the case of stills. This temperature may be anywhere between 80 or 90 F. and 10 below zero, or colder.

Heat Is Wasted

When cold air is drawn into the furnace, the first job of the fire is to heat the incoming air to combustion temperature. The heat thus used brings no profit to the refiner for it does not get into the contents of the boiler or the still.

The Lientz furnace is a two-story affair. That is, it is designed with a false bottom, or a compartment below the floor of the firebox. The lower chamber is divided lengthwise into three compartments, or tunnels, extending the entire length of the firebox. The middle passage is comparatively wide and the tunnels on each side are narrow. Below the floor of the firebox, in front, there is a bank of tubes of about two-inch diameter and about two feet long. These tubes, open to the atmosphere, draw air into the middle chamber where it travels back, absorbing heat by radiation from the floor of the

fire box above. At the back of the chamber below the fire box there is a partition wall. The incoming stream of air strikes this wall and is split and diverted to either side into narrow tunnels.

It travels back through these to the front of the firebox where it is drawn through two small ports, one from each tunnel, into the combustion chamber. It is sucked in by the siphoning action of the blowing flame.

Burner Fits Snugly

The front of the furnace is entirely bricked up, the burner fitting through the wall snugly, and no air is admitted except through the tube bank and the tunnels under the firebox. The placing of the burner, Mr. Lientz says, is a very important factor because it must be put in such a position, with reference to distance from the face of the furnace, that the force of the steam or air used to atomize the oil will exert the right degree of siphoning force to draw in just the amount of air required for most efficient combustion. Mr. Lientz says tests have shown that air drawn in through the tubes at 2 below zero enters the combustion chamber at 500 F.

There is no such thing as a standard Lientz furnace to suit all jobs, according to the inventor, each furnace and each installation being an individual problem. It costs from $400 to $750 per still to install the furnaces, according to the various conditions encountered, Mr. Lientz says.

But he declares that such an installation will pay for itself in from four to eight months and he is willing to bet on it, because he says: "We furnish guarantees of increased boiler capacities and fuel saving, and, under our fuel saving contract, we take the fuel saving for an agreed period as our payment." Making the installations pay for themselves altogether. In addition to the advantage of introducing hot air instead of cold air which slows down the fire, Mr. Lientz points out another advantage from a chemical standpoint as follows:

Complete Burning of Gases

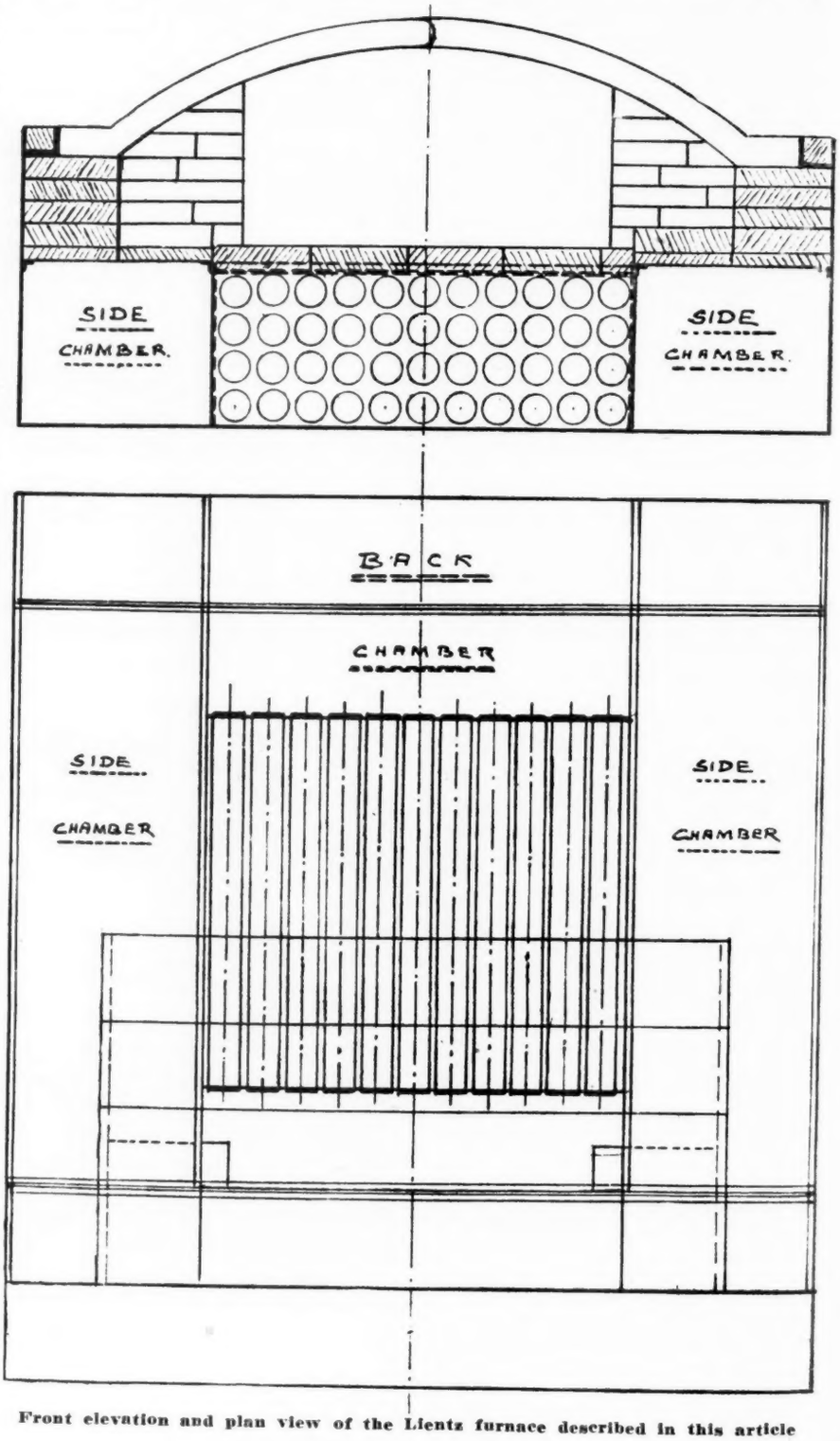
The acceleration of combustion by heat, which is a chemically well known fact, is the most important factor in the burning of hydrocarbon gases (oil or natural gas). The gases of lower ignition temperature, such as methane, ethane and ethylene, burn as flames of inferior luminosity and even the acetylene, which has also a low ignition point, produces its characteristic flame of brilliant luminosity only after having reached its dissociation temperature, which lies beyond the dissociation temperature of the above named hydrocarbons. Therefore, rapid raising of the gases to a high dissociation temperature is chemically required in order to avoid the premature burning of the acetylene gases before dissociation takes place and in order to avoid the forming of gases of incomplete reaction.

In other words in the ordinary type of furnace in many cases, part of the gases into which the fuel oil is converted go up the stack unburned or only partly burned and this is remedied in the Lientz furnace by highly heating the air introduced for combustion.

Mr. Lientz says his furnace "furnishes the three essential things for combustion; sufficient air supply (but not excessive) intimate contact between air and fuel and a high temperature kept up to ignition point until combustion is quite complete. Either insufficient air supply, insufficient contact or too rapid cooling (through excess air, improper introduction or improper baffling) are usual causes of incomplete combustion." The accompanying drawings show front elevation and plan view of a Lientz furnace.

For several years the refining company we are talking about has been experimenting with fractionating towers of various sorts. There are big towers and little towers set up on various stills in the plant. Some of them have been more and others less successful. All of them are air cooled.

On top of one still are mounted three Van Tilburg towers, which the officers



Front elevation and plan view of the Lientz furnace described in this article

of the company regard as about the most efficient air cooled tower with which they are acquainted. But any air cooled tower, of course, means wasted heat that could be turned to good purpose to the end of cutting down the fuel bill.

A few months ago the company began investigating the Cross-Widdell bubble tower with the result that they have one in operation at their plant. It is hooked up with a rerun still, rerunning crude benzine and has increased the yield of gasoline from the benzine rerun by six per cent and the yield from the crude by two per cent. The company is well pleased with it. So well pleased that a second tower is now being installed.

This tower represents, so far as is known the latest development in fractionating practice.

How It Is Built

The structure, as it stands in the refinery yard, is 53 feet high but 23 feet of this height is simply a steel supporting skirt to carry the tower itself. This construction was found to be much cheaper than a structural support. The height at which the tower is set would, of course, vary with the height of the still to which it was connected.

The working part of the tower is 30 feet high by five feet in diameter. It contains 25 horizontal trays or pans, the bottom of each perforated with a number of holes. Over each hole stands a bubbler cap with saw-toothed bottom edges. The bubbler caps are of cast iron and each is fitted with two sturdy ears, standing about nine inches high.

The tower can be easily dismantled for cleaning out. The trays are made in sections bolted together and the tower is fitted with a good sized manhead near the top. A man can get into the tower through this hole, pass out the bubbler caps, which are wired to the topmost tray, take apart the topmost tray and pass out the sections, lift out the bubbler caps on the second tray, dissemble it, and so on.

None of the bubbler caps except those on the top tray are fastened. Each tray, with its liquid load, resting on the ears of the bubbler caps, on the tray below, holds them firm and prevents their being blown out of place by puking or priming of the still.

How It Operates

An insulated 10-inch vapor line from the still leads into the side of the tower near the bottom. The vapor line leading from the top of the tower through which the gasoline vapor passes out is eight-inch, the reflux line that leads the condensate back into the still is four-inch, line for pumping cold benzine into the top of the tower is two-inch.

The vapors from the still enter the bottom, the heavier vapors condensing in the lower pans. The lighter vapors find their way up through the perforations in the trays, out through the saw-tooth openings and bubble up through the liquid in the pan above. Thus the vapors condense serially in the pans, the heaviest in the lower pans and the lighter in the highest, and the liquid is intermittently overflowing to be refluxed into the still.

Accurate temperature control is the keynote of the operation of the tower and this is regulated by the rate of pumping in of cold benzine over the top, the tower, of course, being well insulated.

At this plant, the tower is regulated to bring off U. S. Motor gasoline over the top. It has been found that to get the 437 end point it is necessary to hold the temperature at the top of the tower or at about 340 F. Control of the tower is almost altogether automatic, the temperature being regulated by an ingenious device.

Thermo-couple Control

The thermo-couple in the top of the tower is connected to a Brown recording thermometer, and termperature regulator, which in turn, is connected with a pump by an electric circuit. The mechanism is so devised that when it is set for a certain temperature, say 340 F., any deviation of the recording needle from the straight line of the temperature desired automatically corrects it.

If the needle wanders from the straight and narrow path on the hot side, showing the temperature in the tower is too high, it tilts a mechanism above the recording part of the instrument. This action completes an electric circuit and starts the pump throwing cold oil into the tower.

When the temperature has been brought back to the predetermined point, and the needle is again indicating the proper temperature, this trips the mechanism again, breaking the contact and shutting off the pump. Just like a thermostat in a home, opening and closing the drafts of the furnace, as the thermometer goes up or down.

A good many refiners have been under the impression that the use of a bubble tower on a crude still or any still operating at atmospheric pressure would be impossible because of the back pressure that would be built up on the still by the resistance of the pans of oil in the tower to the upward passage of the vapors.

At this plant, however, it has been found that the pressure is only three pounds to the square inch, which is insignificant. About half of this pressure is figured to be due to the head of the oil and half to frictional resistance.

According to H. E. Widdell of the Cross-Widdell Co., Kansas City, designers of the towers, there are a great many factors besides just the dimensions, entering into the designing and a mistake in calculating any factor would be likely to make the whole thing worthless. Each tower has to be designed according to the work it is expected to do, the crude or distillate on which it is to operate and the point in the system where it is to be installed.

Mr. Widdell says that on a battery of crude stills, the most advantageous place for such a bubble tower would be on the third still where the vapors from the first three stills would pass into it. Installed there, only one tower to the battery would be needed and if properly designed as to size, it would handle all the light vapors and give a very efficient separation, making all rerunning unnecessary.

The only difficulty to be encountered in installing the tower on the third still of the battery would be that it would interrupt the gravity flow of the oil from the third still into the fourth as it is commonly handled in refinery practice. He says that to wipe out this difficulty would be a simple and inexpensive matter to install a liquid level control which would automatically open and close the switch to start and stop a pump which would transfer the oil from the third still into the fourth from where it could go through the rest of the battery in the regular gravity flow.

One of the accompanying photographs shows a bubble tower similar to the one described.

In Case of Fire when Filling Cars

Stop the pump!

Don't pull the hose from the tank!

Use Pyrene!

Use Foamite, or soda and acid!

Use extinguishers if fire persists!

Use sand, dirt or water if these fail!

Don't open the hood! Fight fire under the hood through hood ventilators or through radiator openings.

These suggestions in fighting automobile fires at filling stations were prepared by the Union Oil Co., of California and published originally in its house organ, the Bulletin.

WICHITA, KANS.—Dixon & Horney, distributors of Waverly products at Texarkana, Ark., believe in giving their trade any service they require. Recently when a lady customer found her car on fire, instead of calling the local fire department, although the latter is said to be one of the most up-to-date in the south, she telephoned to Dixon & Horney's station. Mr. Horney immediately sent out one of his men to extinguish the fire, according to E. R. L. Boyd, district manager at Wichita, Kans., for the Waverly Oil Works Co.

A Money-Saver To You!

OIL PRICE HANDBOOK For 1924

IF your office, like so many others, spends hours, perhaps days, digging up back prices on gasoline, kerosene, or crude to settle disputes or for other reasons—

Then you'll appreciate the money-saving to you in the OIL PRICE HAND BOOK FOR 1924.

In this handbook you have the Refinery Markets for 1924; Tank Wagon Prices for 1924 on gasoline and kerosene, and s.s. price on gasoline for over 150 cities, dates of price changes, etc.; Crude Prices for 1924 with dates of changes; N.Y. Export Market for 1924; Refinery Directory of plants; type, operations, etc.

The handbook is cloth bound—marginal index—complete for 1924—price $3.75.

Send for your copy today! Use the coupon below.

National Petroleum News Pub. Co.
804 Caxton Bldg.
Cleveland, Ohio

Send me copy of OIL PRICE HANDBOOK FOR 1924.
Enclosed is check (or money order) for $3.75.

NAME .....

Address .....

Date .....

Motorists Not Getting Full Benefit Of Added Mileage

By John Younger
Editor, Automotive Abstracts

CLEVELAND, Jan. 30.—An interesting paper by A. A. Straub, a mechanical Engineer of Pittsburgh, is given in the January issue of the S. A. E. Journal. He tested a modern six-cylinder car in which the builder's instructions regarding the maintenance of adjustment of the engine and its accessories were carried out rigidly on a 1700-mile trip, which included both touring and city driving.

He obtained an average fuel consumption of 18.35 miles per gallon. He then had the car adjusted at an average automobile service station and made a subsequent 1000-mile trip over level improved roads and only obtained 15.4 miles per gallon.

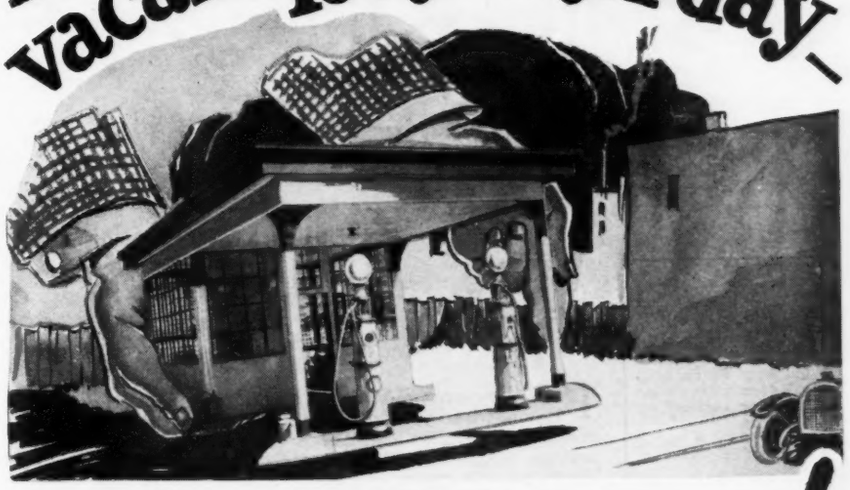
This would indicate the fact, which has long been felt, that although automobile engineers and designers are building increased gasoline mileage into their cars, the public is not getting full advantage of it because service stations or garage men are either not capable of keeping these adjustments in order or changing the adjustments to suit some special thing such as a demonstration of power.

Recently Professor Lockwood of Mason Hall Laboratory, Yale University, in testing a Cadillac car, found that although the design was substantially the same over a period of 10 years, the speed of the vehicle, under the same gasoline consumption conditions, had increased from 53 to 60 miles per hour.

Similarly he found that the gasoline consumption had been lowered continuously throughout the years 1914-1924. This also gives weight to the fact that there has been a slow steady progress toward more efficient engines and from observations made at the New York show, these improvements are still coming along. Vibration of engines, while a source of trouble, is also a consumer of gasoline and the new engines with their big crankshafts, their rigid crankcases will cut down this vibration and will increase the gasoline mileage.

Reverting to Mr. Straub's paper he includes the plea that manufacturers instruct service attendants in the principles of combustion and of the value of exhaust gas analysis for the determination of the efficiency of carburetor adjustment, and further that they time engines according to instructions. An intelligent application of basic principles to the adjustment of the engine will often bring about a 30 per cent gasoline mileage increase with improved power and flexibility. There is no question but that educational cooperation would be of value along this line and would help further our gasoline supply.

A vacant lot yesterday—



PROFITS today!

No time lost in getting THESE Filling Stations into service. No waiting for the carpenters, bricklayers, or any other skilled workmen. The Moss Fabricated Steel Service Station is complete. Unloaded in sections on your vacant lot one day it can be ready for service the next. Quick and easy to erect. Two ordinary mechanics can do the work with a hammer, screw driver and monkey wrench.

Absolutely fire safe. Large steel sash windows give fullest light and display space.

Attractive in appearance yet not costly or elaborate. Complies with fire laws. Our large volume makes prices unusually low. Prompt delivery from stock. Phone, wire, or write our nearest office.

THE J. E. MOSS IRON WORKS
Wheeling, West Va.

MOSS
FABRICATED STEEL SERVICE STATIONS

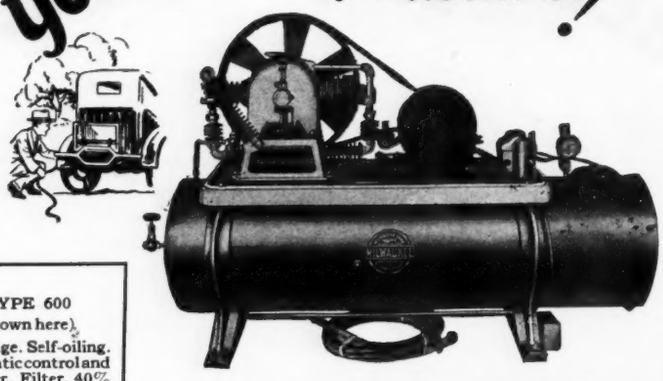
The VISCONVERTOR
New—Quick—Accurate

Converts Saybolt Viscosity values to Redwood, Engler, Barbey and vice versa at *Different Temperatures*.
Just Like a Slide Rule!

Approved by Dr. T. A. Delbridge of the Atlantic Refining Company.
Price $7.50. Write for Descriptive Circular.

Sole Distributors
The EMIL GREINER Co., 55 Fulton St., New York, N. Y.
EVERYTHING FOR THE OIL LABORATORY

Your Air Service need Cost you NOTHING!



TYPE 600
(shown here).
Two stage. Self-oiling. Automatic control and unloader. Filter. 40% greater inter-cooler radiating surface on all types.

TYPE 601
Same fine features as Type 600, except it is single stage.

TYPE 602
Same as Type 601, but portably mounted.

TYPE 603
Single stage compressor only, having tight and loose pulley.

FOR the extra profits and extra sales in oil and gasoline brought into your station through high-class air service more than pays for installation and upkeep cost of that air service. MILWAUKEE TANK WORKS *Air Compressors* are business-builders of national reputation. It costs a station more to be without them than to have them—for the good will they build, the sales they make, the long, dependable service they give. Many outstanding features—one of which is the Milwaukee-patented automatic start and stop control. Oversize capacity. You can install them—oil them—*then* forget them. Shipped set up ready to run. *Write AT ONCE for prices and details.*

MILWAUKEE TANK WORKS, *Milwaukee*
New York Pittsburgh Chicago Cleveland Detroit Minneapolis St. Louis Paris Rotterdam London

MILWAUKEE TANK WORKS
Air Compressors

MAXIMUM QUALITY MINIMUM COST

Gasoline and Oil Filling Stations
and Steel Buildings

We manufacture the simplest to the most elaborate Stations. Put your own individuality in your Filling Stations—Let us help you work this out.

The Edwards Manufacturing Co.
524-544 Eggleston Ave. **Cincinnati, Ohio**

Gasoline Plant Built In Alaska Field

LOS ANGELES, Dec. 30.—B. F. Masten, engineer of design for the Pacific Gasoline Co., has returned from Alaska where he supervised the construction of a small absorption gasoline plant for the Chilkat Oil Co. in the Katalla field. This is a small field that has been producing for many years, a small refinery running all the production.

The "Booster," company publication of the Pacific company, has in its December issue the following comment on Mr. Masten's stay in Katalla:

"Efforts to develop the oil and coal fields of Alaska date back some 25 years or more. In the country in which Mr. Masten was working, an English company, captalized at $25,000,000, had expended huge sums in development work without success. Their operations were abandoned in 1903 when the natural resources conservation program of our government made it impracticable for them to continue. Several large scale attempts were made by other companies to tap the mineral wealth of this territory, but few of them have been successful.

"Not far from the scene of Mr. Masten's work is located the railroad laid many years ago by the C. R. & N. W. Railway but never used. After 15 miles of track had been laid, its builders decided to change the route entirely and the work was abandoned, leaving a fine stretch of track, beginning and ending in the wilderness. It was around the construction of this line that Rex Beach wrote his famous story, 'The Iron Trail,' which contains many true accounts of actual incidents that took place during the time.

"Automobiles in Alaska are not numerous presumably for the reason that there are few good roads. From three to eight miles might be considered the average amount of road in and about the various settlements and towns which might be considered passable for motor cars. Gasoline is distributed principally by one or two of the larger Pacific Coast marketing companies at a price seldom more than one or two cents higher than that in Los Angeles. Staple foodstuffs are quite reasonable, with a heavy demand for canned goods.

"While the extreme cold of the North works hardship upon many of its inhabitants, there are things even more disagreeable which torment them in the warmer months, in the form of countless bugs and mosquitos, particularly in the low country. Everyone wears a mosquito or fly net over his head in the summer months, and is protected by netting while sleeping.

"A radio set at Mr. Masten's camp furnished them with news from the outside world each day, stations in Los Angeles being heard without difficulty."

Fire Protection Body to Study Tank Truck Equipping and Handling

Staff Special
WILMINGTON, DEL., Jan. 29

INVESTIGATION of three subjects important to the whole oil industry, was ordered by the Flammable Liquids Committee of the National Fire Protection Association at its meeting in Wilmington, Jan. 15 and 16. The subjects were:

1. Specifications for manufacture and regulations for the equipping and handling of tank trucks.

2. Specification by oil burner manufacturers of the right oil for their burner—the oil companies to deliver the right oil if the use of wrong oil increases the deposit of soot and the fire hazard.

3. Investigation of the feasibility of bringing about the invention of some tight connection between gasoline pump hose and the automobile gasoline tank.

This meeting was the committee's first under its new chairman, H. L. Miner, who is in charge of fire prevention and safety engineering for the DuPont interests. Most members of the committee were present, the oil industry being represented by Dr. R. P. Anderson of the American Petroleum Institute, H. L. Shoemaker, engineering department, Standard Oil Co. of New Jersey, F. A. Epps, fire and safety prevention engineer, Tide Water Oil Co., F. W. Staley, The Texas Co., and W. C. Platt. The burner manufacturers were represented by E. P. Bailey, president of their national association.

New York Forces Action

The question of regulating gasoline and other oil tank trucks has been discussed much by the committee for some time. Action on it, however, was forced by the present investigation being made by the city of New York, in contemplation of allowing tank trucks of oil companies on Manhattan island. The city officials are now drawing up specifications. The first lot have been criticized and are being revised by the city.

A record of several fires and accidents of tank trucks was submitted by the National Board of Fire Underwriters. This showed that the chief hazard of the tank truck was the railroad train. Next to the railroad train, was the hazard of being bumped by other vehicles and faucets broken off. Next to that was the blocking of the automatic closing faucet in such a manner that when a fire did occur at the time of emptying a truck tank and the attendant drove the truck away, a trail of gasoline and generally a fire was left in its wake.

A committee authorized to investigate the case and report back to the main committee, consists of H. E. Newell, National Board of Fire Underwriters, chairman; W. B. White, acting manager, of the New York Board of Fire Underwriters; E. J. Smith, Underwriters' Laboratories, Chicago; Mr. Epps, and Dr. Anderson.

Investigation of the domestic fuel oil situation was prompted by a discussion of flues and dampers in flues where oil is burned. It was argued that it was necessary to see that the flues were kept clean. One of the points brought out was, that flues were dirtied with soot so frequently because the house-holder used the wrong oil. A sub-committee was appointed not to draft specifications for the right kind of oil for the householder to use, but to look into the possibilities of making certain that the oil burner manufacturer specifies the right kind of oil and knows what he is talking of when he does write that specification, and that the oil company delivers the right kind of oil. It is expected that part of the problem will be correlating some of the ideas of the oil burner people with the character of product that is most easily procurable from the oil companies over the country.

Members of this committee are Mr. Smith, Dr. Anderson, Mr. Bailey, Mr. Newell, and Mr. Shoemaker.

The committee discussed the desirability of allowing permanent gasoline pumps inside buildings, particularly inside garages. In Oklahoma that practice is not allowed today, but application has been made to allow it in the construction of the many-story, concrete, fire-proof garages, which are being built in the cities.

A. M. Schoen of the South-Eastern Underwriters' Association, Atlanta, Ga., said that he had just received an application to allow that kind of installation in a five-story garage proposed for Atlanta. The owners of the garage wanted to put in a regular filling station equipment inside the garage on the main floor. He objected, and suggested that they put it outside. They didn't want to do so because of the amount of store space it would kill.

Allows Portable Equipment

Mr. Schoen argued that any general filling of cars inside a garage was bound to cause the deposit of a great deal of vapor which would be a hazard in that kind of space. He said he realized the filling of cars could not be prohibited entirely inside of garages, so he was willing to allow the usual portable gasoline tanks for that purpose; this portable equipment, he said, would take care of the transient and the tourists who needed gasoline but would not prompt a man to go into the gasoline business. The committee finally expressed its opinion as being against the installation of permanent gasoline pumps inside buildings.

The point was then brought up by the oil interests that at present the only place where gasoline is exposed to the air, so to speak, all the way from the well to the consumer, is at the delivery of the gasoline to the consumer's automobile tank. This point of delivery represented the only serious break in the chain of safety in the handling of gasoline.

It was pointed out that if some way could be devised to make a tight connection which would be practical and would not require an impractical amount of time for the filling station to connect the gasoline pump hose and the automobile tank, this one weak spot would be corrected. With delivery of gasoline to the automobile tank made through a tight connection, less attention would have to be paid as to the location of pumps even inside buildings and many other problems would be elminated.

The oil interests pointed out that any change in this weak spot could prob-

Project Gasoline Pipe Line in Richmond Va.

WILMINGTON, DEL., Jan. 29

CHARLES Loeber, Richmond, Va., consulting engineer, submitted to the Flammable Liquids Committee, detailed plans for laying gasoline lines under the streets in the congested districts of Richmond. This plan is being fostered by the Little Oil Co. of Richmond.

Most of the gasoline sold in Richmond, it seems, is sold on much travelled and wide streets. The town has few filling stations. Effort is being made to get the owners of all the pumps along the streets to combine and take their gasoline from this pipe line system. The system is still in embryo. Mr. Loeber said it would cost about $250,000 to install and figured that it would cost a little less than 1½ cent a gallon to operate, delivering 20,000 gallons a day. This is straight operating cost and did not include any losses in handling the gasoline at either end.

The pumps would be connected directly to the line. He wanted to know of the committee if it would approve such an installation. The committee appointed a sub-committee consisting of C. T. Ingalls, Oklahoma Inspection Bureau A, M. Schoen, South-Eastern Underwriters Ass'n. and Mr. N. G. Burgster, Western Actuarial Bureau, to investigate and report.

ably come about only over many years time. It probably would be necessary to get the co-operation of the automomobile manufacturers to have them put the tank openings at a uniform place and to standardize the necks. It would also be necessary to invent a device that would cover this opening and also vent the tank during the filling operation. The vent would convey to some safe place. A gauge for the tank would be desirable so as to eliminate any overflow of gasoline. This would mean the co-operation of the hose and coupling manufacturers and the gasoline pump makers.

A special sub-committee was appointed to investigate and report whether or not they thought a tight connection could be brought about and if so, to report a plan for proceeding for bringing it about. The committee consists of Mr. Platt; R. M. Cadman, Schedule Rating Office of New Jersey; W. J. Chattin, New York Reciprocal Underwriters; I. Osgood, Boston Board of Underwriters, and Mr. Staley. This committee will report at the next meeting of the committee which will be in March.

It was reported to the committee that visible gasoline dispensing pumps carrying more than 10 gallons in the visible container were being manufactured and used in some places. It was the opinion of the committee that the quantity should not exceed 10 gallons.

Indian Refinery Delivers In Handsome Trucks

NEW YORK, Jan. 29.—In order to improve its method of delivering lubricating oils to its dealers in New York City, the Indian Refining Co. recently purchased a Mack bus chassis on which it mounted a specially equipped tank body to provide greater speed in operation, smooth and comfortable riding, smart appearance and heavy load capacity.

A 700-gallon cylindrical tank with four compartments is mounted on the chassis, and manhole covers, faucets, lamps and bumper bars are finished in nickel which contrasts with the deep blue of the body lettered in white.

An all-metal cab with leather top not only provides the salesman and driver with closed car comfort but is smart-looking. Cushions are upholstered in genuine leather and rubber matted floor boards complete the refinement and comfort seldom found on tank trucks.

CINCINNATI, O., Jan. 29—Cincinnati Oil Works Co. expects to open its new service station at Aurora, Ind. about Feb. 1, and to begin operation of its bulk station and trucks, according to J. H. Birch, salesman at Yellow Springs, O.

HUDSON, IA., Jan. 29.—H. B. Holmes recently opened a new service station here, handling Sinclair products.

Auto Engineers Discuss Remedies for Crankcase Dilution

By John Younger
Editor, Automotive Abstracts

DETROIT, Jan. 30

THE Society of Automotive Engineers held its annual meeting in Detroit Jan. 19 to 22. Much of the session was given up to considerations of body design and engine vibration; but one complete day, Jan. 22 was given to the problem of keepoing the motor oil clean not only from dirt but also from fuel diluent or in other words "crankcase dilution."

Many representative technical men from the oil companies attended and entered into the discussion. Robert E. Wilson, member of the research council of the Standard Oil Co. of Whiting was chairman, and George A. Round, research engineer of the Vacuum Oil Co., gave the leading paper. There were also men present from the General Motors Research Corp., who are investigating lubrication problems from the automotive point of view.

The first part of the session was devoted to a discussion on the dust that enters an engine and contaminates its oil and causes wear. C. E. Summers of the G. M. Research Corp., found that over 60 per cent of dust was composed of silica which was found to be very abrasive in its action. The average size of dust such as is picked up by tractors is about one-thousandth inch in diameter, and this causes an average wear of 0.0025 in per ten thousand miles. The heavier particles go out with the exhaust but the lighter particles find their way past the piston and travel down to the oil where it adds to the insoluble content.

It was this latter phase that Mr. Round especially dealt with pointing out that at times this reached as high as over two per cent of the oil and added materially to the wear of the engine. The use of filters with screens of the self cleaning type were strongly recommended as furnishing the best means of keeping the oil clean. Air cleaners such as the new General Motors product, the A. C., also help materially in improving oil conditions. Settling tanks or species of coffer dams Mr. Round said were of little value in separating the dirt, as its specific gravity was so close to that of the oil. This, however, lead to the great advantage that the dirt being generally in suspension was flushed out while draining the engine, and he recommended this practice every 500 miles for the 15,000,000 or more cars in daily use.

S. W. Sparrow and T. S. Sligh, both of the Bureau of Standards, gave the convention the benefit of the tests they had made on the problems of oil dilution by fuel residues. Mr. Sparrow said the theory was well understood, and that the problem facing the Bureau was how to get around the action produced. Some automotive engineers claim it is good to have a percentage of dilution present, as this thins down the oil in winter and makes for easier starting.

The feeling, however, as expressed in the discussion was that the main trouble lay in the fact that the engine was allowed to get cold and that instead means should be found of keeping it at a proper temperature when parked or otherwise not in motion. Mr. Sligh dealt with a simple form of distilling mixtures of crank-case oil and diluent so as to get the proper percentage present. This is simply a means of distilling the mixture in an ordinary flask so that the distilled portion flows down a tube ending in a capillary stem. This stem is sufficiently large to allow the diluent to flow freely but, as soon as the crank case oil begins to come over, the tube begins to fill up thus giving immediate visible evidence that all of the diluent has passed over.

Actual demonstrations of this method were made before the large audience and the accuracy of the method was fully appreciated. During the meetings there were several references to the value of this research work in helping solve the problems of the combined automotive and petroleum industries in their common relationship and thanks were expressed for the co-operation manifested by the research men in the oil industry.

Refiner Paints Truck For Bootlegger

LOS ANGELES, Jan. 29.—Some marketing practices are still considered bad in this territory. One of the large refining companies is selling to a service station man who has a tank truck at 5 cents under the service station price. The company also has painted the truck for this man, it is said. He in turn sells to other service station men at 4 cents off the service station price while the Standard's market at tank wagon is 3 cents under the service station price.

Although the number of gasoline bootleggers is growing less, considerable bootleg kerosene is in the market at 9 and 10 cents. The best posted price of kerosene of the Standard is 15½ cents.

BROOKLYN, N. Y., Jan. 29.—Barrett Oil Co., Inc. expects to open its eleventh service station here in the near future, reports R. W. Austin, sales manager.

A Survey of the Crude Oil Situation

By Paul F. Nash, Statistician, New England Oil Refining Co.

IN considering what the probable future trend of crude oil production will be most investigators, in the writer's opinion, think too much in terms of individual known fields and try to forecast too definitely the location of future wildcat areas.

With the present development of geology and paleontology such efforts amount to little more than simple guesses, since even known production areas cannot, like coal fields, for example, be measured and the potential production obtained thereby.

On the other hand, there is no reason to expect that the fundamental economic principles which apply to other industries should fail to function in our own industry. The principal difference between oil and similar industries, such as coal, cotton and rubber, is in the comparatively violent fluctuations which oil has as compared with these other industries. These fluctuations apply to both production and prices.

Consumption increases at a fairly steady rate (making allowance, of course, for mere seasonal changes in demand) and has relatively few significant fluctuations.

Hard to Predict Short Swings

As a result of the fact that the oil industry has more violent movements than most other industries producing and manufacturing raw materials, it becomes nearly impossible to intelligently forecast "short swings" in production and prices, a process comparatively easy with some other commodities.

The fundamental reason for these violent fluctuations is, of course, the uncertainty of our crude supply. Could the potential amount of oil underground be even approximately measured many of the "short-time" variations in both production and prices could be forecasted and consequently diminished in extent.

Since, however, there is no method yet in sight of gauging our oil reserves it becomes necessary to be content with forecasts of "long-time" trends. After all, these are the more important, for, while they take longer to produce their full effect, the final changes are greater and more lasting than any "short-time" fluctuations, however violent.

The accompanying chart, prepared from generally accepted sources of data, attempts to present the principal factors in the crude oil situation during the last eight years. Mid-Continent 33-34.9° crude prices are taken as typical of crude prices over the country as a whole.

The Chart Explained

First, a word about the construction of the chart. It will be noticed that the scale is not "even", that is, the distance between 1 and 2, for example, is far greater than the distance between 9 and 10. This scale is known as a "ratio" or "logarithmic" scale. Its purpose is to compare changes in the curves of different series of figures when these series are expressed in different units.

Here, for example, the bottom curve is in dollars per barrel, the next one up is in number of wells, and the third from the bottom is in barrels. A method generally employed under such conditions is to prepare an ordinary chart and simply use different scales for each curve. The trouble with such a procedure is that by selecting certain scales almost any "fact" can be proven.

A large scale will make relatively minor fluctuations in one curve seem tremendous when compared with the fluctuations of another curve. Even when one is trying to present the matter in an unbiased light it is difficult to select judiciously the proper scales.

The ratio scale automatically presents the various curves in their proper relationship by making equal vertical distances on the chart represent equal percentage changes, no matter in what part of the scale they may occur. For example, the distance between 1 and 2, 2 and 4, 4 and 8, 8 and 16, etc., is the same and is equal to a 100 per cent change in each case.

This means that if one curve has been hovering around 2 and suddenly jumps to 4, this event is of equal significance with another curve running around 8 which goes to 16, and is so indicated by both lines going up at the same angle. On an ordinary chart the 8-16 movement would seem to be of far more importance because it would go up at a much sharper angle. The same sort of thing applies to any changes no matter how great or how small. In short, the ratio chart permits one to compare scientifically and in an unbiased manner movements of several curves expressed in different kinds of units.

Possibly the most significant fact shown during the first few years in the above chart is the rapid increase in the number of drilling wells. From early 1917 to the summer of 1920 they practically doubled. The number of producing wells completed followed the same general upward trend with the seasonal element more pronounced.

The reason for this latter fact is obvious. A drilling well often closes down, or virtually so, during the winter. During all that time, however, it is still classed as a drilling well. Similarly, a long fishing job may extend the drilling period to many months or even a year or more. All this time the well is technically drilling.

Hence, at any one time there is necessarily a lot of "deadwood" in this figure of drilling wells. Wells completed, however, when they once appear in a month's figures, never appear again. Then again, in winter, unlike drilling wells, they cannot show as high a total as in summer, for when drilling is retarded there must necessarily be a slowing up in the rate of completions. As stated above, however, the *trend* of well completions in the 1917-1920 period was approximately the same as that of the number of drilling wells, each increasing sharply over the period. Production, on the contrary, did not increase at nearly as fast a rate, due in part, at least, to the fact that there was only one flush field of importance (Burkburnett) brought in during that period.

Downward Trend in Drilling

From the summer of 1920 up to the present, however, there has been a distinct downward trend in the number of drilling wells. In fact, the line is almost back to its starting point in 1917. The number of completions has paralleled this downward trend, as might be expected. A very remarkable fact, however, in view of the sharp decline in drilling operations and completions, is that production has kept on the same upward trend which prevailed during the 1917-1920 period.

Two reasons may be ascribed for this unusual state of affairs, first of which is the tremendous number of drilling wells and the consequent large number of small producers brought in during the 1917-

---

The author of the accompanying article takes a point of view with regard to production of crude which is very frequently overlooked in discussions on this subject, namely its relation to total drilling operations over the country. One point which has too seldom been brought out is that our greatly increased production of the past three years has been brought about on a declining rate in field operations, as shown in the total of drilling wells and completions.

Without frequent flush pools being opened up this decline would have had an important effect on production. The question comes up, however, as to what effect on crude output any great increase in the number of drilling operations will have when such an increase comes, on top of the great volume of settled production from old producing wells—Editor.

Hand and Air Operated

Five and Ten Gallon Models

A Catron's Ambition

TO pump the most gallons of gas at the least expense—counting first cost and up-keep. That is the ambition of every Catron Pump.

We send them out prepared to realize their ambitions—service built in at the factory.

Let us tell you or show you how.

Catron Mfg. Co., Inc.
201-215 E. First St., Bonham, Texas
Dept. N

Safe Underwriters' Labels on both five and ten gallon pumps.

ADVANCE
Cold Tested Lubricants

are guaranteed to retain their lubrication value under extreme cold condition. This essential quality is responsible for their preference.

AMERICAN
Oil Corporation
Jackson, Mich.

GULF Refining Company

General Sales Offices
PITTSBURGH, PA.
District Sales Offices
New York, Houston, Atlanta, Boston, New Orleans, Tampa, Philadelphia

REFINERS OF OKLAHOMA TEXAS AND LOUISIANA

PETROLEUM

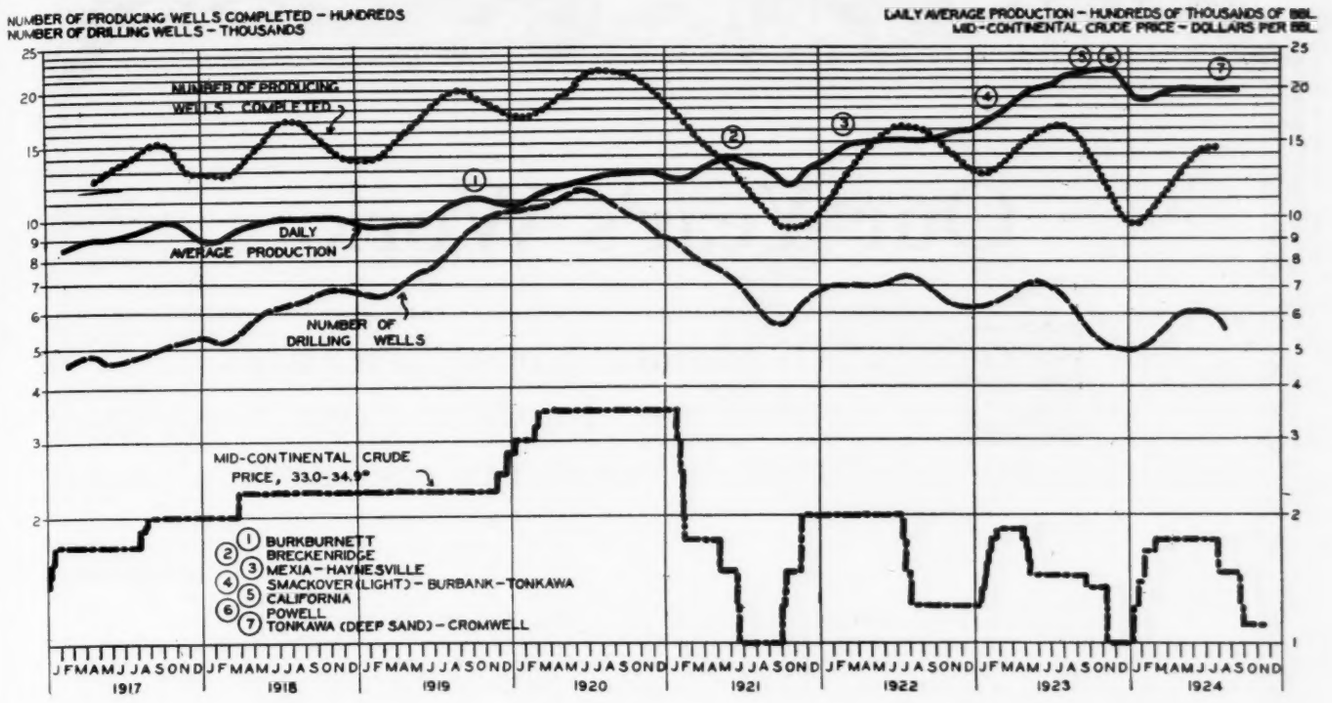
REFINED OIL
GASOLINE
NAPHTHA
GAS OILS
PARAFFINE WAX
ASPHALT

Fuel Oil--Lubricating Oils

CYLINDER ENGINE
CORDAGE

RED AND PALE PARAFFINE OILS

THE TREND OF THE CRUDE OIL SITUATION



1920 period. These, as remarked before, uncovered only one flush field. The fact that most of these wells were small also meant that taken as a whole their life would be longer than if they had been larger.

Consequently it is this "backlog" of a large number of small producing wells which has formed the real backbone of production since 1920. A continuance in the rate of increase in production would have been impossible during the 1921-1924 period, however, in view of the declining rate of drilling operations, had it not been for the unprecedentedly large number of flush fields which reached their peaks during the last four years.

The more important ones are indicated on the chart. Deeper drilling and improved production methods have been partly responsible for this, but it seems extremely unlikely that any other cause than chance produced such a large number of flush fields as compared with the previous four years, 1917-1920.

Conclusions Significant

The conclusions to be drawn from these facts are significant because they tend to verify the opinion of that group which has been predicting a crude oil shortage and to which opinion the writer personally has been opposed. It is obvious that the downward trend in drilling wells and completions cannot keep on forever without this tendency being reflected in the production line.

There are evidences that such a point may come within the next few years. We believe that we have had a period of overproduction in 1924. Yet, in spite of the over-production this year, the 1924 part of the production line can be seen to be "flat" when compared with the upward trend over the previous seven years. The "backlog" of 1917-1920 wells is beginning to weaken and must necessarily play a diminishing part.

The flush production has caused upturns from time to time but has not increased the general upward trend during the last four years. The decline in drilling and consequently in the number of completions means that we are now providing no such "backlog" of small but steady producers for the future as we were in 1917-1920.

More Drilling to Hold Up

Therefore, we shall be increasingly dependent on flush fields to keep up production. A certain number of barrels will be added to the production by flush fields each year, but as the total production goes higher these flush fields will influence the total less and less. The only thing that will keep production on the upward trend at anywhere near its 1917-1924 rate over a period of years is a sharp increase in the trend of drilling operations.

We must realize, of course, that improvement in refinery technology has produced more of the desired refined products from relatively less crude. Furthermore, there has been a gradual accumulation of crude over the last few years. These two factors, therefore, will tend to delay the day when a period of actual shortage will begin, so that such a period will not be inaugurated for two or three years at least.

The fundamental fact remains, however, that such a time must come eventually, for, with the continuation of a downward trend in drilling operations, an "unlucky" year with respect to finding flush yields would mean a sharper decline in the daily rate of production than any we have ever experienced.

While the above discussion applies only to long-time trends, since determination of shorter movements was shown to be impracticable, there is one fact with regard to the "short swings" which should be noticed on the chart, and that is the relationship between crude prices and crude production. This is particularly noticeable since 1920. Early in October, 1921 prices began to advance sharply. This was immediately followed by an upturn in the number of wells drilling and shortly thereafter by an increase in the number of wells completed with a contemperaneous increase in production.

Bulge Not Proportional

The "bulge" in production was not, naturally enough, relatively as great as the increase in the other factors, since it was merely adding a relatively small amount of new production to a large amount of old. The increase is apparent, nevertheless, and culminated in Mexia and Haynesville.

A downwnard price movement initiated in July caused a decline in the number of drilling wells and the number of completions. The effect on production was not an actual decline, but a leveling off of the advance. This is what one would expect, for the large "backlog," together with the flush fields which had settled to a fairly regular production, would for a short time at least, prevent any actual decline when the flush production was removed.

Again in the early months of 1923 the cycle started and again the results were the same, the main difference being one of degree, for California added a tremendously greater production than any flush fields ever previously discovered in any one year. The effect of it continued for several months after (and was extended

Our Year's Work

TRADITION makes January first a day of resolutions. In these pages a month ago we made public our resolution for 1925.

To fulfill this purpose means that during all the working days of 1925 we shall devote our knowledge, ability, purpose and energy, physical and mechanical, to the further development of Canco Service. That is our duty to our customers.

That we may justify your confidence and retain your co-operation—to this we heartily dedicate our effort.

Canco Service is a living fact to us; we want it to mean the same to you.

American Can Company
NEW YORK CHICAGO SAN FRANCISCO

American Can
CONTAINERS OF TIN PLATE BLACK IRON GALVANIZED IRON FIBRE

a month by Powell) the price had definitely declined. It is impossible, however, that a sharper decline in prices during the summer instead of waiting until autumn might have prevented some of this overproduction. In 1924 the same cycle was repeated once more, with results differing only in degree from 1923, 1922 and 1921.

These considerations seem to prove conclusively that crude price increases have a direct corollary in an increase in production which in turn eventually causes price declines. There is every reason, therefore, to hold up crude price advances at the present time until a period of sustained drawing on stocks is closer at hand.

Butler Mfg. Co. Gives Banquet to Salesmen

KANSAS CITY, MO., Jan. 29.—Upon the completion of its twelfth annual salesmen's school, the Butler Mfg. Co., manufacturers of steel truck tanks, with headquarters here, recently celebrated by a banquet for its sales force at the Kansas City Club.

Charles R. Butler, president, was in charge of the evening's program, the entertainment for which was furnished by employes' talent, including music by the orchestra, headed by C. C. Crouch, vice president and manager of the Minneapolis factory.

When roll of the "office boys" was called by Mr. Butler, it was shown that the majority of the officers had been former office boys. It was further revealed that nearly everyone of the 63 persons present which included officers and directors, the sales force and factory department heads, were stockholders. There are now nearly half thousand employes, as compared with three men 24 years ago when the company first went into business.

A report given by Mr. Butler reviewed the large increase in business of the past two months over the corresponding months for the previous year. Wives of the directors of the company entertained on the day of the banquet with a luncheon for the wives of department heads and salesmen and ladies of the organization. After luncheon they attended a theatre.

Kansas City officers besides Mr. Butler are: E. E. Norquist, vice president and plant manager; Harry F. Smithers, vice president; Roy S. Kemp, vice president and credit manager; William A. Knapp, secretary; Oscar D. Nelson, treasurer; Don J. Butler, sales manager; William C. Heimlich, advertising manager; F. A. Rufi, assistant vice president and plant manager; Victor Norquist, assistant plant manager; John G. Fahlstrom, superintendent.

LOWVILLE, N. Y., Jan. 29.—Smith Oil Co., Inc., a newly-formed company, has just completed its new office, warehouse and bulk plant here, according to G. Aubrey Smith.

ADVANCED ADVANTAGES in 1925

WITH oil jobbers working, as they do, under high pressure, it behooves every manager to take advantage of every opportunity he possibly can. That's shrewd business management.

By reason of our unusual supply, our sales activities and our service policy, we were able to give our customers many material advantages in 1924. And with the general expansion and scope of our business in 1925 these advantages will obviously be increased and enlarged.

There are many advantages to you in handling our

Quality Gasoline

KEROSENE—NAPTHA—FUEL OILS

LUBRICATING OILS and WAX

We invite your inquiries

ADVANCED PETROLEUM CORPORATION
CONSUMERS BLDG. CHICAGO, ILLINOIS.

Dart
BUILT BY OIL MEN FOR OIL MEN
VISIBLE PUMP

Is Made In Four Models

1. Dart Visible 10 gal. bowl, air operated only, with 20 gal. auxiliary air tank.
2. Dart Visible 10 gal. bowl, hand operated only.
3. Dart Visible 10 gal. bowl, combination hand and air operated with 20 gal. auxiliary air tank.
4. Dart Visible 10 gal. bowl, electric motor driven.

Measuring markers of brass have adjustable screws and may be moved and sealed by inspected.

Accurate - Durable
Low Price - No Waste

Chicago Office: 80 E. Jackson Blvd.
W. C. GIBSON, Sales Representative

Caward Dart Company
PUMP DIVISION
WATERLOO, IOWA

42 Years Scientific Refining
H. B. S.
MOTOR OILS

A high grade product

WRITE OR WIRE
- FOR SAMPLES -
AND QUOTATIONS

The National Refining Co.
National Headquarters: National Bldg.
Cleveland, Ohio

No Political Spellbinding as Nebraska Closes Its State Service Station

By W. K. Halbert
N. P. N. STAFF WRITER

LINCOLN, NEB., Jan. 30

THE state of Nebraska has gone out of the oil business after retailing 82,000 gallons between the time Charles Bryan (brother of William J.) was nominated to make the race for vice president of the United States on the Democratic ticket, and the time his term of office of Nebraska expired.

The board sign by a filling station drive-way on the outskirts of Lincoln, has been draped. The tanks are empty. The pump is quiet. The tool yard starts getting dark at sundown.

Governor Adam McMullen did not order the pet enterprise of his predecessor to be discontinued. He just forgot to order any more gasoline for it and after the supply was exhausted the patronage fell off rapidly. The history of the Bryan station will bear only a brief review at this stage of the country's political history. But inasmuch as there is another gasoline filling station in Lincoln supposed to be a part of "res publica," it may be well to show which one has started and which one has stopped.

Charles Bryan is a dry Democrat, but the Democrats were accused of being wet when he ran for governor of Nebraska. His campaign chatter in those days was about the same as more recently. He advocated government control of just about everything in the way of paying enterprises. He carried the Democrat ticket which he headed. He drew a heavy Republican vote because he was drv. and a flock of persons of radical tendencies voted for him too; maybe because they thought he was going to make railroads free or something like that. Anyway he was elected the only Democrat in the state house.

Following the example of W. H. McMaster, governor of South Dakota, Mr. Bryan started out to "bust the trust" with a filling station in Lincoln. Of course he inaugurated a cut price which brought on a price war in Lincoln. When the war brought the Lincoln service station price down to a figure that represented a loss Bryan tried to raise the price but couldn't. He did post a price higher than the prevailing one at his own semi-rural station, but got no patronage. Nevertheless the station remained in existence as long as Bryan remained in office, even after he was defeated for vice president.

But before Bryan left office the city of Lincoln started to have a municipal station. City Commissioner A. P. Cowgill agitated the thing and got it started. It did not require much agitation, for the voters of Lincoln voted an amendment to the city charter last November authorizing city authorities to engage in the oil business. Major Cowgill faces a fight with the oil industry. The oil men of Linocln propose to contest the matter in the Federal Courts but such contests are proverbially tedious and long.

A. J. Wolcott, manager of the Mutual Oil Co., Denver, made the formal complaint, bringing the matter into Federal court. They have eminent legal assistance, but the battle is not won. Things municipal are popular all over Nebraska. Its famous "Muny" ice plant, also its "Muny" coal company, and its several "Muny" gasoline stations each has transfigured some ordinarily good politician into a national character. Commissioner Cowgill is next in line for notoriety.

And while the subject is open, Commisioner John Hopkins of Omaha, who started the first "Muny" station in the state, nearly a year ago, narrowly escaped being made governor of the state on the strength of it when Bryan abandoned his office to make the national race.

By the way, Commissioner Hopkins did not pay any inspection when he was running that notorious pump in front of the fire station at Eighteenth street and Izard avenue in Omaha. He did not pay inspection, it is said, because he claimed the gasoline station to be a municipal affair. That was the light thrown on the case up in Lincoln where inspection fees were due. But down in Omaha where he was operating and not supposed to use city funds, it was generally considered his own private affair.

Just what the upshot will be, is yet to be seen. But Secretary C. M. Sutherland of the Nebraska Independent Oil Men's Association says that G. L. Shumway, the retiring deputy secretary, has advised the new state administration to sue the city of Omaha and John Hopkins for the money due on inspection of gasoline.

Will Build Lube Warehouse

PITTSBURGH, Jan. 29.—The Pennsylvania Lubricating Co., 34th St. and Allegheny Valley railroad, Pittsburgh, is to start construction of a 3-story service and distributing plant at 33rd and Spruce Sts., soon. The building will be 72 by 121 feet and will cost $55,000.

LOS ANGELES, Jan. 29.—The Rice Ranch Oil Co., operating at Signal Hill and in the Santa Paula fields, declared its regular January dividend of one cent per share on 1,000,000 shares, and declared a special Christmas dividend of the same amount, totaling $10,000.

Products

That Are Easy For You To Sell

The dependable quality and uniformity of Humble Products makes them easy to sell—easier the second time than the first, since they satisfy users.

Your real profits come from repeat customers; and here is where Humble Products will help you, for their quality assures satisfaction and your customers will come back *to you* for more of the same kind.

Our large producing and refining facilities enable us to make prompt shipment of any quantity you may need to fill the demands of your trade, from a carload to a shipload, by rail or water to any part of the world.

The Humble Line is complete; and each product is carefully prepared and tested to meet the most rigid requirements. Wire or write for samples and prices.

Humble Oil & Refining Co.

Houston, Texas

Producers—Pipe Lines—Refiners—Marketers "Zero Cold Test Oils."

HUMBLE OIL & REFINING CO.
HUMBLE OILS
HOUSTON, TEXAS

The RHODES is the Original Pre-filled Oil Dispenser

Are you using Scoop or Package Methods?

The age of the scoop and measure is gone.

Package goods dominate the market today. They save time for both the buyer and seller.

The package is not merely labeled. It is attractively designed to give it selling value.

The Improved Rhodes Motor Oil Dispenser is a package of greater display value than any package on the shelf. Its transparency clearly displays the oil within, and suggests its own sale.

Do you still keep your oil customers waiting while you go to the oil pump to fill your measure? They don't have to wait for merchandise elsewhere and don't like to wait at the filling station. That's why motorists favor Rhodes prefilled dispensers.

Filling station operators like the ease of handling which Rhodes Dispensers give and the weatherproof feature too. The metal cap on the spout keeps the oil free from dirt and moisture.

Send for a set or two of Rhodes Dispensers and show yourself the advantage of the package way of dispensing oil.

JAY B. RHODES COMPANY

KALAMAZOO, MICHIGAN

Toronto St. Louis San Francisco

PURE-PENNSYLVANIA-PETROLEUM-PRODUCTS
TRADE MARK CORECO ESTABLISHED 1885

CORECO MOTOR OILS

Guaranteed 100% PURE PENNSYLVANIA OIL

Permit No. 38

Represent the best lubrication for ALL motor purposes.

Every drum of "CORECO" has the Pennsylvania Crude Oil Association Insignia.

Insist upon seeing this Insignia

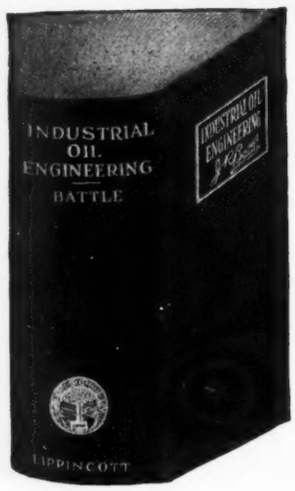
Continental Refining Co., Oil City, Pa.

Vogt Products For The Oil Refiners

We manufacture Paraffine Wax Presses, Distillate Chilling Machines, Stills, Auto Truck Tanks, Special Refinery Equipment, Boilers, Refrigerating Machinery, Drop Forged Steel Valves, and Fittings. Bulletins on request.

Henry Vogt Machine Co.
Incorporated
Louisville, - Ky.

Branch Offices
New York Chicago
Philadelphia Dallas



Lubrication

If you are an oil salesman, an oil engineer, refinery superintendent, or oil company executive—

If you want to know the most efficient utilization of oil products and equipment; saving of power and eliminating oil waste—

Get INDUSTRIAL OIL ENGINEERING by J. R. Battle. It is a reference work of 1,100 pages of tables, charts, requirements and general information on lubrication and industrial oils. This is the most comprehensive book written on the subject.

INDUSTRIAL OIL ENGINEERING will earn its purchase price many times over for you. Send for your copy today.

National Petroleum News
802 Caxton Bldg., Cleveland, Ohio
Send me INDUSTRIAL OIL ENGINEERING by J. R. Battle.
Enclosed is $10.

Name.....

Address.....

.....

Industrial Notes

Hyde-Schneider-Haley Mfg. Co., Rockford, Ill., has off the press a new 68-page catalog devoted to its line of bulk and service station equipment.

* * *

Oscar W. Loew will become advertising and sales promotion manager with the Truscon Steel Co., Youngstown, O. in February.

* * *

Jenkins Bros., valve manufacturers, with American headquarters at New York, have appointed William H. Utz, vice president and formerly European director of Jenkins Bros., Ltd., London, England, director of sales in the United States.

* * *

Republic Flow Meters Co., Chicago, recently put on the market improved indicating and recording pyrometers. One of the chief improvements over former types of recorders, the company claims, is in the marking of the chart with a ribbon instead of the usual stylus.

* * *

Sherwin-Williams Co., Cleveland, O., has appointed H. R. Hefley manager of the petroleum industry sales department. Mr. Hefley will have his headquarters at Tulsa, Okla. A. W. Everett, formerly assistant to Mr. Hefley, succeeds the latter as sales manager of the Oklahoma sales division.

* * *

Griscom-Russell Co., New York has published a leaflet describing its G-R instantaneous heater for furnishing hot water for boiler feed, heating systems, industrial processes, etc. The leaflet outlines applications, advantages and specifications of the heater and includes a complete table of sizes, capacities and dimensions. Copies may be obtained by writing the company at 90 West St.

* * *

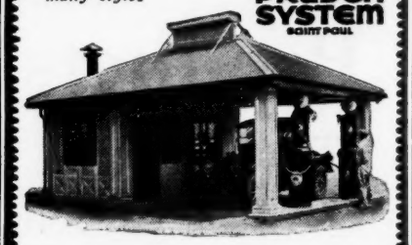
The Hydrotater Co., Philadelphia, a newly-formed corporation, has acquired the patents and engineering business of L. C. Trent, who has been operating as the L. C. Trent Engineering Co. at Philadelphia. Mr. Trent has retired from the business except for a limited territorial arrangement on the Pacific coast. General offices of the new company are at 1328 Chesenut St.

* * *

National Recording Pump Co., Dayton, O., manufacturer of National Duplex gasoline pumps, announced the resignation of William T. Hatmaker as president on Jan. 1. Mr. Hatmaker sold his interest to S. W. Burnham, the original organizer and principal financial factor in the company. Mr. Burnham becomes president, J. P. Hanna continues as vice president in charge of sales, and E. E. Eickmeyer, the engineer who has designed all National products, continues as vice president in charge of engineering and production.

—just one of many styles

PRUDEN SYSTEM
SAINT PAUL



Keeping "Overhead" low

Spells profits in the filling station business.

Using PRUDEN SYSTEM all steel buildings for your filling stations will put your overhead down to the minimum, because

1. They cost about a third as much as a brick building, giving the same service.

Agents wanted

2. They are quickly put up, enabling you to be doing business in them long before a brick or stucco building would be erected.

Metal Shelter Co

Wabasha & Wat.. Sts.
SAINT PAUL, MINN

Canfield Oil Co.
QUALITY & EXPERIENCE SINCE 1848

Premium Motor & Tractor Oils

Canfield Castor Machinery Oils

Canfield Cup Grease

P. O. C. Gear Compound

Canfield Auto Soap

Canfield Anti-Rosin Belt Dressing

Canfield Oil Co. Cleveland

Increasing Production of Petroleum by Increasing Diameter of Wells

By Lester C. Uren,

Associate Professor of Petroleum Engineering, University of California

PETROLEUM occurs, in nature, as a fluid saturating the pore spaces between the grains of porous rocks or aggregations of rock particles, such as sand, sandstone, conglomerate, shale, limestone, etc. The oil, under the influence of gas pressure, hydrostatic pressure, gravity, earth pressure, and, perhaps, other natural forces, is caused to flow through the porous "reservoir rock" into wells penetrating the stratum in which the oil occurs.

The principal moving force is the pressure of dissolved or occluded natural gas within the oil, though this force is assisted by gravity and by the hydrostatic or buoyant pressure of ground water about the edges of the "pool." The wells, providing outlets to the surface, are centers of reduced pressure and the flow of rock fluids into a particular well is usually an expression of the difference in pressure existing between the space within the well and that of the stored oil within the reservoir rock. The greater this differential pressure, the more rapidly will oil flow from the source rock into the well.

Opposing movement of the oil from the reservoir rock into the well are certain natural forces related to the rock structure, such as pore friction and capillarity, and certain others related to the physical properties of the oil, such as viscosity and adhesion. The differential pressure between the well and the boundaries of the area drained by it must be sufficient to overcome the forces opposing flow if there is to be movement of the oil into the well. If by any device the resistance to movement of the oil may be reduced, the oil will flow into the well at a more rapid rate and the effective area of drainage will be decreased.

Early Exhaustion an Advantage

It is evident that the productivity of a well will increase with the increased diameter, and if by any practical means the diameter of the well within the oil sand could be increased from 6 in. to, say, 20 ft., the gas and hydrostatic pressure would be effective in at least doubling the productivity of the well. This increase in the rate of production would also increase the radius of drainage of the well and hence the gross production, for the reduced resistance to flow would result in the movement of oil over greater distances. It must remembered in this connection, that the area drained by a well is not constant but decreases as the field pressure declines. While oil might move toward the well over a drainage area 600 ft. in diameter during the first year of productivity, when the field pressure is high, five years later, when the pressure has greatly declined, the area influenced by the well will be much smaller. The advantage of exhausting the well in the shortest possible time, therefore, is obvious.

THE accompanying is from a paper which has been published by the American Institute of Mining & Metallurgical Engineers and distributed to its members. It is to be presented at the February meeting of the Institute.

Not all of the paper is published here. The author devoted considerable space to theoretical concepts of oil drainage for the purpose of demonstrating that the flow of oil into a well from saturated sand of uniform texture increases with the diameter of the well. That portion, because of lack of space here, has been omitted as have several drawings illustrative of that part of the discussion.

The method proposed has been demonstrated only in laboratory, as the author points out. His experiments, however, convince Dr. Uren that the plan is workable.

—Editor.

Assuming that the initial year's production of a 6-inch well could be approximately doubled by increasing its diameter within the oil sand to 20-feet, the ultimate production would be greatly increased. For example, according to the U. S. Treasury Department's "Manual for the Oil Industry," an average well in the Buena Vista Hills area, Midway field, California, having an initial year's production of 70,000 barrels has a probable ultimate production of 234,000 barrels; while a well having a production of 140,000 barrels during its first year has a probable ultimate production of 378,000 barrels. This represents a gain of 144,000 barrels through enlarging the well, which amount, because of the normal decline characteristics, is largely recovered during the first two or three years of productive life. That is, its period of realization is short and its present value correspondingly high.

Whether the law of equal expectations on which the foregoing reasoning is based would hold when comparing a 20-foot well with a 6-inch is, perhaps, doubtful; but even assuming that the large well produced no more oil than the small well, it would produce it in a shorter time, so that its present value would be greatly augmented and many years' operating expense would be eliminated.

More Efficient Drainage

It seems reasonable to assume, however, that if the rate of production of a well is thus increased, the well will ultimately produce a larger quantity of oil, not only through extension of its drainage area but also as a result of more efficient drainage. As the area of a circle increases as the square of its diameter, the radius of drainage of the well does not have to be greatly extended to bring twice as much oil within its influence. For example, a drainage area 850 feet in diameter will contain twice as much oil as one 600 feet in diameter. Increased efficiency of extraction alone would easily account for the enhanced production, bearing in mind the fact that by present methods of extraction in many cases we probably do not recover more than 25 per cent of the oil present in the sands. In addition to the wider spacing of wells that the increased drainage radius would make possible, resulting directly in a lower cost of development for a given acreage, the advantage of an operator in competition with his neighbors along property boundaries, in being thus enabled to increase the rate of production and radius of drainage of his wells, is obvious.

The foregoing discussion is purely academic and of no practical significance unless a means can be found of accomplishing the enlargement of the well to the desired diameter and, also, of supporting the walls of the enlarged well so that they do not cave. The sinking of a well from the surface 20 feet in diameter to the depth from which present-day oil production must be obtained would be uneconomical and impractical. The only other alternative is to ream out a well of normal diameter to the desired size where it passes through the oil-producing stratum. Mechanical under-reamers intended for enlarging a well at depth, however, are limited to a few inches in their range of expansion, and no mechanical device that can be operated through a 6-inch well can ex-

Value of Approved Equipment

OCECO EQUIPMENT PROTECTS

HOW often disaster hangs over the head—hangs by a hair like the sword of Damocles!

The "hair" is the equipment on which everything depends. If it fails all is lost.

This equipment may be the brakes of your touring car—the block signal on a railroad—the equipment on your oil storage tanks.

Where lives and property depend on such equipment the use of only that of established value merits serious consideration.

Realizing the responsibility carried by OCECO Equipment our policy has always been to have it submitted to the Underwriters' Laboratories, Inc., for testing before placing on the market.

And users place full confidence in this Equipment because it *is approved* by the Underwriters' Laboratories, Inc.!

The Oil Conservation Engineering Co.

Headquarters for Tank Equipment

Addison Road & N. Y. C. Tracks
CLEVELAND, OHIO

325 Iowa Building	Tulsa, Okla.
809 Texas Nat'l Bank Bldg.	Ft. Worth, Tex.
305 O-S Building	Casper, Wyo.
318 E. 12th Street	Los Angeles, Cal.
440 Howard Street	San Francisco, Cal.
Beaumont Export & Import Co.	Pulstrin Bldg., Beaumont, Texas Tampico, Mexico

OCECO EQUIPMENT: Gauge and Thief Hole Covers, Roof Manholes, Complete Swing Line Equipment, Breather Valves, Flame Arrestors, Fire Extinguishers.

EVAPORATION

FIRE

OCECO EQUIPMENT PROTECTS

OIL TANK **OCECO** EQUIPMENT

SAVES EVAPORATION AND PREVENTS FIRE

cavate a cavity of such proportions as has been suggested.

The process here described, which is as yet untried on more than a laboratory scale, the author believes will accomplish this result, at least in certain kinds of oil-bearing rock; particularly the loosely cemented oil sands characteristic of the California and some of the Gulf Coastal and Mid-Continental fields of the United States. The process consists of the erosion of the oil sand by a high-pressure hydraulic jet of oil directed from tubing lowered through the well, subsequently filling the cavity thus formed with gravel to support the walls and prevent their caving. By the method proposed, under favorable conditions, it is considered feasible to excavate a cavity about the well that will average 20 feet or more in diameter and extend throughout the entire depth of the oil-producing stratum. The well will be filled with oil so that the detrital material loosened by the jet will be carried to the surface by the oil from the jet, the oil being circulated continuously through the well in much the same manner as is mud fluid in rotary drilling.

After the cavity is formed, and while its walls are prevented from caving by the hydrostatic head of oil within the well, fine gravel or carefully sized crushed-rock fragments about ¼ or ⅛ inch in diameter will be pumped into the

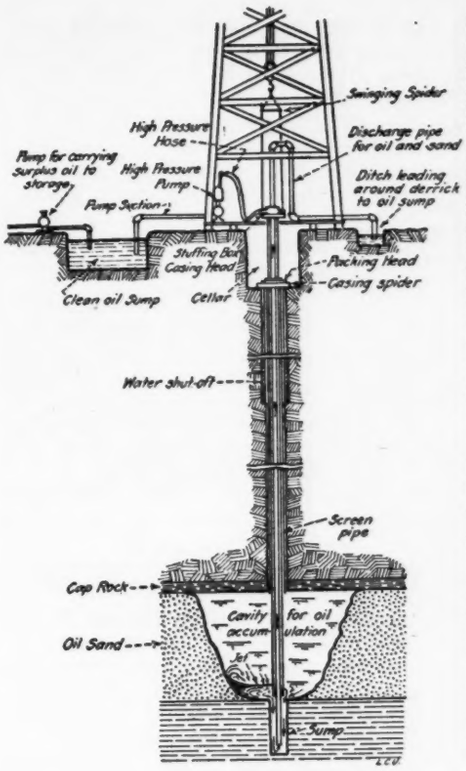


Fig. 7.

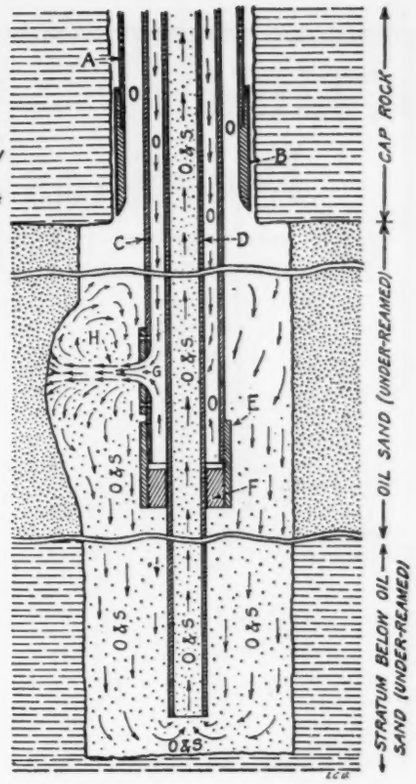


Fig. 8.

Fig. 7.—Arrangements for forming a cavity about a well by hydraulic action of a jet of oil.

Fig. 8.—Method of forming a cavity about a well by hydraulic action of a jet of oil; O, oil; O & S, oil and sand.

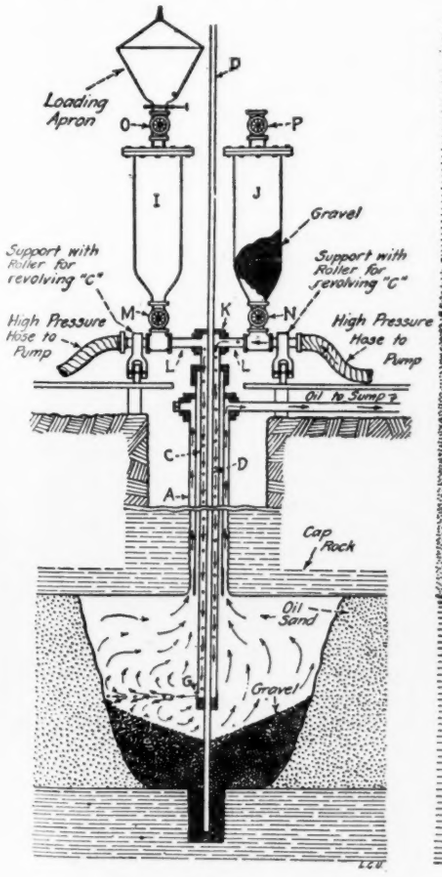


Fig. 9.

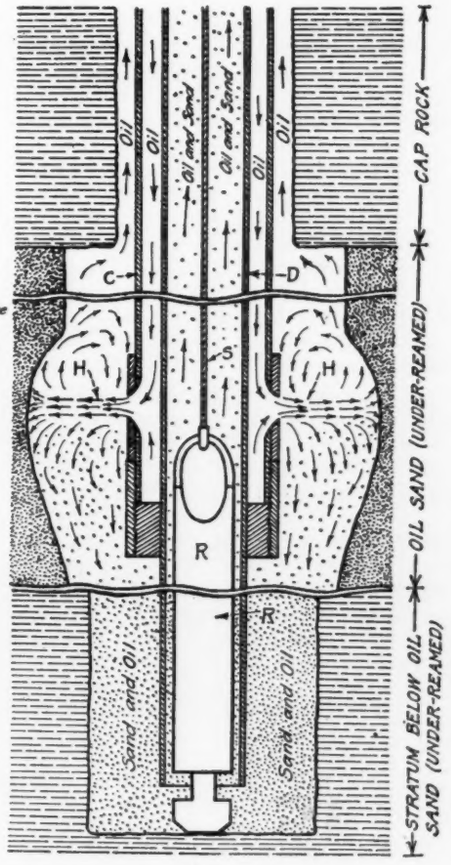


Fig. 10.

Fig. 9.—Arrangements for filling a cavity about a well with gravel by hydraulic action of a jet of oil.

Fig. 10.—Method of forming a cavity about a well by hydraulic action of jets of oil; detrital material removed by circulating or bailing.

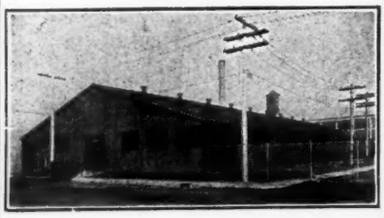
well with the circulating oil until the cavity is again filled. The walls of the cavity will thereby be prevented from caving when the fluid is removed, while the comparatively large interstices between the pebbles will offer small resistance to the flow of oil, so that the enhanced productivity of the well resulting from greater effective diameter will not be greatly altered. All of this work is done after the well has been drilled to its full depth and completed according to the usual present-day practice.

Forming the Cavity

The equipment it is proposed to use in circulating oil through the well is shown in Fig. 7 while Fig. 8 is an enlarged view of the tubing lowered into the well. (Note: Preceding figures in this paper are omitted.) Two concentric strings of tubing C, D are used, the inner tube D having smooth oxy-acetylene welded joints at its lower end so that it is free to slide up and down within the metal plug F closing the lower end of the outer pipe C. This plug fits snugly about the inner pipe D. Both tubes are lowered into the well, first the outer pipe C and then the inner D. The outer tubing is supported in the derrick by a swinging spider of the type used in supporting casing in circulating while drilling with the cable tools; its lower end is about 50 feet off bottom. The inner pipe D passes through the plug F and extends to within one or two feet of the bottom of the well; it may be supported in stationary elevators suspended in the derrick.

Milliken Buildings

SELECT THE BEST STANDARDIZED STEEL BUILDINGS FOR YOUR NEXT OILFIELD STRUCTURE



MILLIKEN BUILDINGS are formed of Standardized Structural Steel units. Every building is COMPLETE, ALL-STEEL, PERMANENT, FIREPROOF. Large variety of types and sizes to suit individual requirements. Material is ready to ship on short notice—erection anywhere with local labor.

These buildings are particularly adaptable to oilfield service. Send for Illustrated Catalog — "CHOICE OF A THOUSAND BUILDINGS" — free on request.

Milliken Brothers Mfg. Co., Inc.
2395 Woolworth Bldg., New York, N. Y.
Also Manufacturers of
Transmission Towers — Radio Towers

Hotel Lassen
WICHITA

Wichita's popular priced hotel. Fire proof construction, commodious rooms, excellent dining service. The location makes it the most convenient hotel in Wichita—right in the business, theater and shopping sections.

From **$2.00**

350 FIRE PROOF ROOMS
Rate Schedule Which Never Changes

42 Rooms, Lavatory.....	$2.00—$3.00
82 Rooms, Private Bath...	2.50— 4.00
76 Rooms, Private Bath...	3.00— 4.50
46 Rooms, Private Bath...	3.50— 5.00
35 Rooms, Private Bath...	4.00— 5.50

Large parlor rooms—twin beds for two persons—at prices slightly above this schedule.

Nearly Everybody Stops at the Lassen

HOTEL LASSEN
WICHITA KANSAS

It is assumed that the well has completely penetrated the oil sand and has been drilled 10 or 20 feet into the underlying formation. All openings between the conductor and outer strings of casing are effectively closed with one or more packing heads. A stuffing box casing head is placed on the outer pipe C, the inner pipe D projecting through it into the derrick; the upper two or three joints of this pipe D also are welded with smooth joints.

Pump connections are made through an armored high-pressure hose with one side outlet of the stuffingbox head on pipe C. The pump may be of the type commonly used in circulating mud fluid in rotary drilling and should be capable of developing a pressure of 800 or 1000 pounds per square inch. Connections are made from the top of the inner pipe D to a sand-settling trough by means of which the oil circulated through the well is led to an oil sump, whence it is taken up by the pump suction for further circulation. The swinging spider permits the outer pipe C to be raised or lowered with the aid of the power, without altering the position of the inner pipe D; with the flexible pump connection it is also possible to turn pipe C about pipe D, back and forth through 360 degrees.

Oil is pumped down between the pipes C and D, flows under high pressure through an orifice G near the lower end of the outer pipe C, and is jetted directly against the oil sand forming the walls of the well (see Fig. 8). Through its force will be partly absorbed by the oil with which the well is filled, it is thought that the pump pressure of, say, 800 pounds per square inch will have a considerable erosional effect even though the sand face is 8 to 10 feet distant. By raising or lowering this pipe C with the swinging spider, or turning it on the inner pipe D, as an axis, from the surface, the jet may be raised or lowered and directed against all parts of the oil sand face exposed within the well.

Oil is returned to the surface through the inner pipe D, the lower end of which is maintained but one or two feet above the bottom of the well. Detrital material loosened by the jet settles into the sump below, the oil stratum and is swept upward to the surface into the sand-settling trough; the oil drops its sand and is discharged into the oil sump for further circulation.

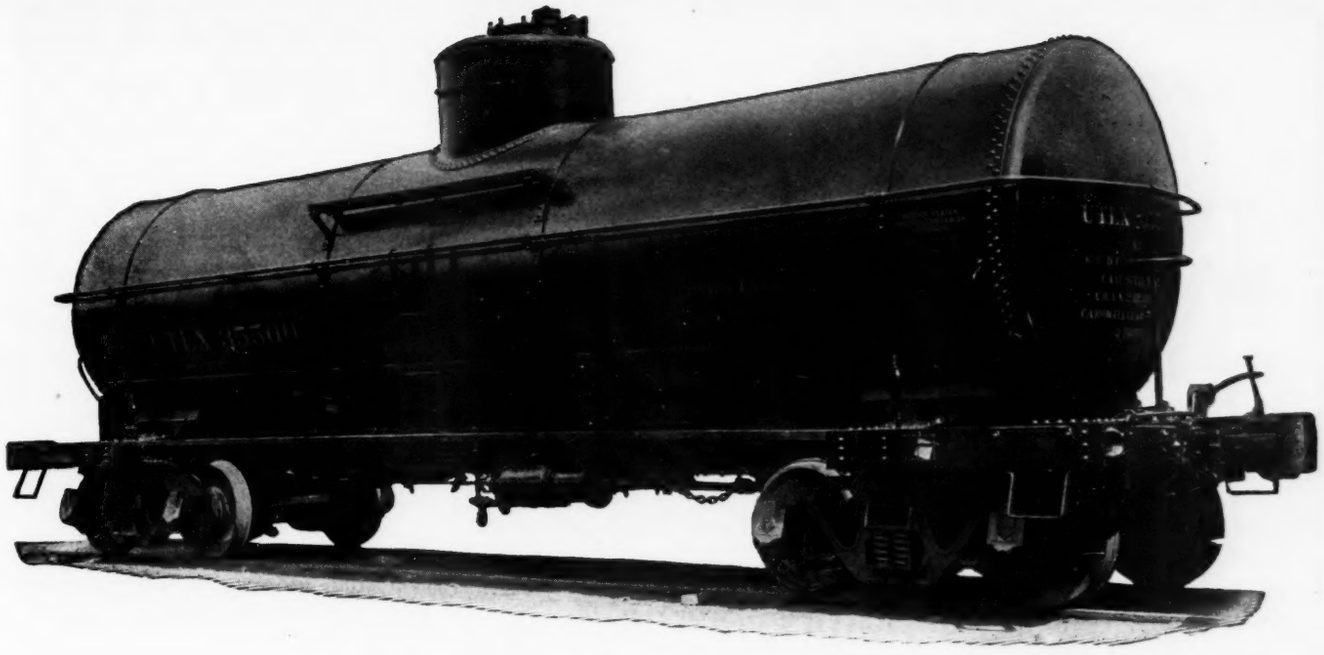
When forming a cavity by this method advantage may be taken of the tendency of the oil sand to cave by starting the cavity at the bottom of the oil stratum and working upward. Because of the tendency of the material to seek its angle of repose, the diameter of the cavity at the top may be somewhat greater than at the bottom. Circulation and manipulation of the oil jet might be continued until sand no longer flows to the surface with the circulating oil, thus indicating that the practical limit of the effective force of the jet has been reached. During the early stages, it will probably be desirable to use a reduced pump pressure to avoid loosening the sand more rapidly than it can be removed by the circulating system. However, the circulating system will be capable of taking care of large quantities of sand, as the sand does not pack when suspended in oil and a large percentage may be present without greatly influencing the fluidity of the mixture.

Filling the Cavity

Sometimes, in the case of a partly cemented oil sand, the cavity thus formed about the well will remain open, the walls displaying little or no tendency to cave. In such cases, the well may be placed on production as soon as the cavity has been cleared of accumulated detrital material. When dealing with unconsolidated oil sands, however, which readily cave as soon as the hydrostatic had within the well is removed it will be necessary to fill the cavity with a porous, sustaining medium before the oil in the well has been bailed or pumped out. For this purpose, carefully sized gravel or crushed rock fragments about ¼ or ⅜ inch in diameter may be used.

The equipment used to excavate the cavity could subsequently be used to place the gravel, with some additional features in the surface equipment. In Fig. 9, I and J are cylindrical gravel containers supported above the stuffingbox casing head K, and connected with the pipe L through which oil is pumped into the space between the pipes C and D. The two containers are supported on rollers so that they may be revolved with the pipe C when manipulating the jet. The pumps and circulating fluid are operated in the same manner as described for the formation of the cavity, except that the outlet pipe D is closed and the oil flows back to the surface between the outer pipe C and its conductor casing A. However, a lower pump pressure should be used when pumping gravel than when excavating so as to avoid loosening additional sand, which would settle between the interstices of the gravel and reduce its effective porosity.

The gravel containers I and J are equipped with suitable valves M and N where they make connection with pipe L; other valves O, P are placed at their upper ends With the upper valves closed and the lower valves open, the interior of the gravel containers may be maintained under full pump pressure and in direct connection with the oil-circulating system. Gravel of suitable size to pass freely through the valves, and between pipes C and D and through nozzle G, is charged into the containers I, J, the upper valves O and P are closed, and either valve M or N is opened. With the pumps working under moderate pressure and with oil flowing down between the pipes C, D, out into the well cavity through the nozzle G, and back to the surface between the outer pipe C and the conductor casing A, gravel enters the circulating system, is swept down through the annular space



Tank Cars

THE Cambria plant of Bethlehem Steel Company is equipped with every modern facility to build tank cars of every class—in any capacity—for the transportation of liquid or semi-liquid products.

Cambria Steel Tank Cars are built in conformity with the specifications in use on all American railways.

We have a standard design of tank car in capacities of 6,000, 8,000, 10,000, and 12,500 gallons of which we can make quick deliveries.

We will be glad to submit prints and specifications of these standard cars, or will just as readily give you an estimate on specifications to meet your own special requirements.

Send us your inquiries.

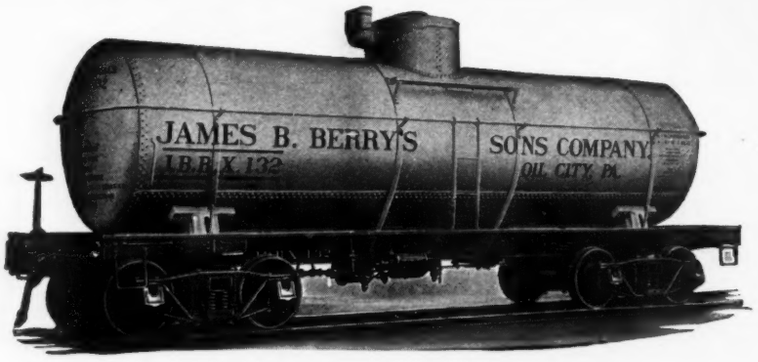
BETHLEHEM STEEL COMPANY *General Offices:* BETHLEHEM, PA.

Sales Offices:

New York Boston Philadelphia Baltimore Washington Atlanta Pittsburgh Buffalo Cleveland Cincinnati Detroit Chicago St. Louis San Francisco

BETHLEHEM STEEL EXPORT CORPORATION, 25 BROADWAY, NEW YORK CITY. Sole Exporter of Our Commercial Products

BETHLEHEM
CAMBRIA STEEL TANK CARS



MANY oil jobbers depend upon Berry's Sons for their supply of gasoline, kerosene and lubricating oils in tank cars.

For over thirty years Berry's Sons have been supplying oil jobbers with every kind of petroleum products at the best market prices.

Write, or wire our nearest office for quotations.

JAMES B. BERRY'S SONS COMPANY OF ILLINOIS

PETROLEUM PRODUCTS

Oil City, Pa. Chicago New York Boston
Philadelphia Tulsa London, Eng.

P. & C. Fig. 147

This valve is particularly suited to handling crude oil that carries sand and cuts the seats. A 350 pound test valve with the retaining ring construction that makes it so easy to renew seat rings.

Reading Steel Casting Company, Incorporated.
Pratt & Cady Division, Bridgeport, Conn.
Stocked by: Norvell-Wilder Hardware Company,
Beaumont, Houston, Mildred and Shreveport.
Grinnell Co. of the Pacific, Los Angeles, Cal.

PRATT & CADY VALVES

between the pipes C, D, through the nozzle G, and is deposited in the well cavity.

Will Carry Out Sand

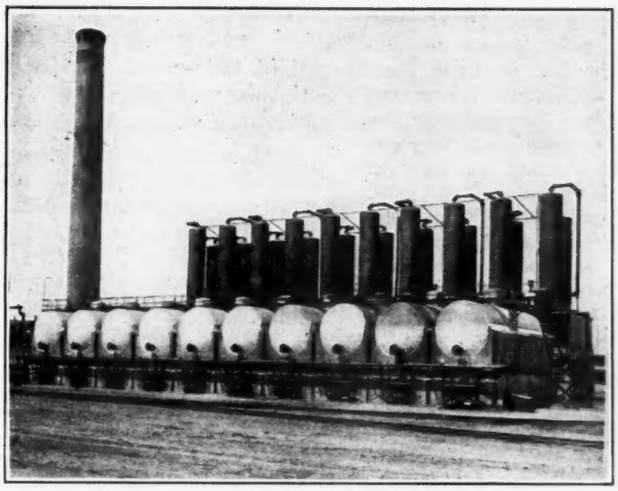
If the volume of the circulating fluid is so adjusted that the oil flowing back to the surface has not sufficient velocity to lift the gravel, it will accumulate in the bottom of the cavity until the latter is filled. By securing a proper ascending velocity of the oil during its return to the surface between the pipes C and A, it will, through its sorting action, carry to the surface any sand, clay, etc., that may be dislodged from the walls of the cavity during deposition of the gravel, leaving the latter free of such material. If the sand tends to cave during deposition of the gravel, a second pump may force a stream of oil down to the bottom of the well through the inner pipe D. If the velocity of this stream is carefully adjusted, it will, on circulating up through the gravel during deposition, carry the loose sand to the surface, leaving the interstices of the deposited gravel free of sand.

When placing the gravel, the jet is first lowered to a point near the bottom of the cavity and then raised slowly and turned back and forth as the gravel accumulates. The gravel containers I, J, are connected with the circulating system alternately, one being filled while the other is feeding its material into the well. They may be readily refilled from a loading apron, which is filled with gravel on the derrick floor, hoisted into the derrick above the containers, and connected with the valve of the container to be filled.

In some cases, it may be feasible to fill the well cavity by gravity, merely dumping gravel into the inner pipe D, raising both pipes C and D as the gravel accumulates; but in view of the difficulty of settling a large quantity of gravel to the bottom of a deep well through a tube only a few inches in diameter, and filled with viscuous oil, placing the gravel with the pump pressure may be preferable. Furthermore, the angle of repose of the gravel might not permit the complete filling of a shallow cavity of large diameter by gravity. If the gravel is placed by gravity, occasional tamping with the cable drilling tools will aid in working it out to the walls of the cavity.

After the well cavity is completely filled, the pipes C and D are withdrawn and the screen pipe A is lowered to the bottom. Some of the gravel may cave into and partly fill the hole left by withdrawing the pipes C, D, but this material will be readily pushed aside by the shoe of the screen pipe A as it is lowered to the bottom of the cavity. Any gravel remaining within pipe A after it is placed on bottom may be bailed out with a sand pump. The permanent pumping device can now be lowered within the screen pipe and the well placed on production.

Should it be found impossible to secure circulation of oil back to the surface,



TOWER STILLS
embodying
many new
features

Designed and constructed by

The J. G. White Engineering Corporation

OIL REFINERIES PIPE LINES GASOLINE PLANTS

Engineering
Construction

Management
Appraisals

43 Exchange Place **New York**

Chosen —because of their— Greater Accuracy Dependability Sturdiness *and* Simplicity

Dr. Cross says:

"By the very nature of our business, we have and do use a great variety of instruments. When selecting instruments for our cracking process, we went into the matter very thoroughly with the idea of obtaining an instrument, the characteristics of which would be extreme accuracy, dependability and at the same time be rugged and fool-proof.

We believe, we have found this in Brown Instruments, and while the giving of testimonials is something we seldom do, we believe, we are justified in this case, because we have had a number of them in use for over two years with entire satisfaction."

Tell us your requirements—we can probably offer you some worth-while suggestions.

Address, The Brown Instrument Company, 4518 Wayne Ave., Philadelphia, Pa., or one of our District Offices, at New York, Boston, Pittsburgh, Cleveland, Columbus, Detroit, Chicago, Birmingham, Houston, El Paso, St. Louis, Denver, Salt Lake City, San Francisco, Los Angeles, and Montreal.

Brown Pyrometers

Most used in the World

Edward Valves *for* Oil Refineries

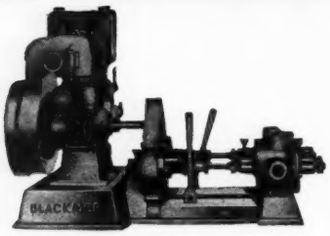
Designed from Experience

EDWARD valves are designed and constructed to withstand peak pressures and extreme emergencies possible in all refineries. We build valves especially designed for specific performance. Our refinery valves were designed by engineers who knew your problems and your requirements.

EDWARD valves are fully guaranteed for satisfactory, efficient operation.

THE EDWARD VALVE & MANUFACTURING CO.
EAST CHICAGO, INDIANA.

BLACKMER
ROTARY PUMPS



More Gallons Per Dollar

The efficiency record for Blackmer Rotary Pumps is—less than one cent per thousand gallons.

We do not claim that every Blackmer will equal this record but we know that Blackmer Rotary Pumps will give dependable service through a long period of years at a minimum operating and maintenance cost. The first Blackmer unit, built over twenty years ago, is still delivering its rated gallonage.

The principle of automatic take-up-for-wear, found in all Blackmers, makes this long life possible.

Let our engineers help you to solve your pumping problems

Blackmer Rotary Pump Co.
PETOSKEY, MICHIGAN
Offices in nineteen principal cities

Patent Pending

SATISFY

your trade by letting them know that you deliver clean oil in bottles and that they can see it.

The caps on the carrier keep out the dirt, hence clean oil.

The Sure Grip bottles deliver the oil quickly without muss, hence quick service.

Your customers like clean oil and quick service. It's up to you to properly equip yourself to render it.

The Neil Dispensing Outfit is the solution.

Information upon request

W^M Neil & Co.
617 W. Division St. Chicago, Ill.

because the sands exposed within the well absorb oil more rapidly than it can be pumped in, other means of removing the detrital material must be adopted. It may be feasible to remove the detached sand by bailing, or by a compressed air lift or ejector. Arrangements for bailing are shown in Fig. 10, which shows the application of two jets placed 180 degrees apart on pipe C. Oil is pumped down between pipes C and D as before, and forced through the jets H against the oil sand, gradually eroding it away. It is assumed that oil accumulates in the well until it attains a sufficient head to cause the oil sand to absorb it as rapidly as it is pumped in. It is thought that this will rarely happen, but it may result in attempting to form cavities in partly exhausted oil sands, the circulating oil entering the oil sand to fill voids left by oil previously extracted. The sand loosened by the jet sinks to the bottom of the well and is removed by the bailer R, which is operated through the inner pipe D on sand line S. The bailer must be operated continuously and lowered to the bottom for its load. Pipe D should, with this method, be as large as the diameter of the well will permit and the bailer R should be as long as possible in order to secure maximum capacity.

Under certain conditions, it will be feasible to remove accumulated oil sand from the well with a compressed air lift or ejector. The ability of the air to handle large quantities of fluid and suspended sand in oil wells has been demonstrated in many instances.* A reasonable submergence, preferably 30 per cent or more of the total lift, must be secured for efficient operation; that is, the oil used in operating the jet must accumulate in the well to some such depth above bottom. If the well has been drilled to a sufficient depth below the oil sand to secure the necessary submergence, it might be feasible, with the aid of the air lift, to maintain a fluid level in the well below the position of the oil jet, so that the latter can apply its full force directly against the oil sand without having its energy partly absorbed by the surrounding fluid. The effective force and range of the jet will be greatly increased in such a case, but conditions favorable for such a method will be found only in comparatively shallow wells. The maximum air pressure available with two-stage compressors (ordinarily about 500 lb. per sq. in.) will limit the depth of operators to about 3000 feet, assuming a submergence of about 1100 feet.

Of the three methods proposed for removing the oil and sand from the well, the first method is the most practical and easiest to apply. The well equipment may be readily installed and the method presents no unusual problems. If the well has been drilled by the rotary method, the oil pump used to provide pressure, the oil-sump and sand settling trough may be used in circulating mud fluid during the drilling of the well. The swinging spider, special casingheads and gravel containers may be readily assembled and moved from well to well and rigged in a short time. If circulation cannot be established, because of rapid absorption of the circulating oil by the oil-bearing stratum, the bailer method or the air-lift method may be employed. The bailer method, however, will have but limited capacity for sand and fluid; and the air lift will require costly compressor equipment and air transmission facilities not ordinarily available on oil-producing properties.

*L. C. Uren: "Petroleum Production Engineering," 370-377; McGraw-Hill Book Co., New York, 1924.

Well Condition Important

The most advantageous method of applying the jet and of filling the cavity will vary with different wells and a careful study of the conditions to be met should be made in each individual case. The time at which the work should be done will also be an important consideration. If gas pressure is high during the early life of the well, the difficulty of keeping the well under control will make it advisable to defer excavation of the cavity until the pressure has subsided. On the other hand, if the well has been producing for some time, it may be difficult or impossible to loosen the perforated "oil string" in order to get access to the sand. In such a case it will be necessary to "side track" the lower part of the oil string and redrill the well through the productive stratum. A sidetracked column of casing may interfere with the action of the jet to some extent but need not necessarily prevent a satisfactory result. Application of the oil jet against the perforations with occasional swabbing, or circulation under the shoe and through the perforations with a wash pipe and plug, will aid in loosening a frozen oil string.

Preparing New Map Of Northeast Okla.

TULSA. Jan. 30.—W. T. Thom, Jr., geologist in charge of fuels for the U. S. Geological Survey, is now in Oklahoma compiling data for a new generalized subsurface contour map of northeastern Oklahoma. This work is being done through co-operation of the Survey with the Oklahoma Geological Survey. It was initiated through appropriation of $1500 by the Oklahoma legislature last year. The map is to be compiled and published by the U. S. G. S., which will bear the rest of the expense. It will run from the northeast corner of the state south as far as Seminole county and west as far as Enid.

NEWARK, O., Jan. 30.—Licking Oil Co. will increase its storage capacity to 1,000,000 gallons, according to A. P. Hess, proprietor of the A. P. Hess Auto Co. of this city.

ON THE LAZY BENCH

Keeps The Home Fires Burning While the Heart is Yearning

A woman friend dropped in the other evening to chat with the wife, and was surprised to find the husband, enveloped in an apron, washing the dishes.

"Where's the wife?" the visitor asked cheerily.

"Over at the barber shop," came the grumpy reply.

—Marion Line

◈ ◈ ◈

"These Cow She Leak"

Boulange (pouring watery milk in coffee)—"Pierre, where you get this milk?"

Pierre—"These milk she come from my cow."

Boulange—"Well, you had better get one tarpaulin for these cow. She leak."

—Pure Oil News

◈ ◈ ◈

Devil: "What are you laughing at?"
His Assistant, "Oh, I just had a flapper locked up in a room with a thousand hats and no mirrors."

—Doherty News

◈ ◈ ◈

If They Can't Flim They Might Film Him

"I hear there is only one picture of Rockefeller in existence and that is a water color."

"Yes, you see they couldn't do him in oil."

—Marion Line

◈ ◈ ◈

Slightly Off Color

Cannibal Waiter: "So you think this hash doesn't taste right, my lord?"

Cannibal Chief: "It certainly doesn't. It tastes as if you had a commercial traveler mixed with a missionary."

—Pure Oil News

◈ ◈ ◈

Some One Pegged Them

Dan: "Come near selling my shoes today."

Billy: "How come?"

Dan: "Had 'em half soled."

—Doherty News

◈ ◈ ◈

What's Scenery, Anyhow?

George: "I married my wife in a cathedral."

Jack: "That's nothing, I married mine in a kimona."

—Bridgeport Driller

Domestic Diplomacy

Junior (Mother listening)—"Papa, did you ever see an angel?"

Father—"Did I ever see an angel? Why, my boy, I've lived with one ever since I was married."

(This earns Father a night out.)

—Magnolia Oil News

◈ ◈ ◈

It's Always True

There was a young lady from Siam,
Who had a bold lover named Priam,
"I don't want to be kissed,
But if you insist,
Heaven knows you are stronger than I am."

—Pure Oil News

◈ ◈ ◈

We Should Say So!

Stage Hand (to manager): "Shall I lower the curtain, sir? One of the livin' statues has the hiccups."

—Doherty News

◈ ◈ ◈

Irate Husband—I wish to heavens, Margaret, you'd stop living beyond our means to impress those Browns, simply because they live beyond their means to impress us.

—The Booster

◈ ◈ ◈

Teacher: "Now, how old would a person be who was born in 1890?"

Bright Pupil: "Man or woman?"

—Magnolia Oil News

◈ ◈ ◈

Hard Times

"Chorus girls have a hard time, don't they!"

"Yes they do have to bare a great deal."

—Pure Oil News

◈ ◈ ◈

In the old days when a man reached for his hip everyone ducked—now he draws a crowd.

—Bridgeport Driller

◈ ◈ ◈

Wah, Wah!

"Golly, Moses! Dey got strawberries and cherries and all kinds o' fruit covered wit' candy. What kind shall Ah git?"

"Git a choc'lat' covered watermellon."

—Doherty News

Quick Service

Gets each car out of the way in double-quick time and the place open for more—and the quicker the service the bigger the profits.

No waiting at the pump when Quick Service Oil Bottles are at hand—no fidgeting by the driver while an old style measure is being filled and emptied—just what the name implies, quick service cleanly given.

And a couple of trays at the pump not only mean quick service but suggest fresh oil to the customer as his gas tank is being filled.

Try a few!

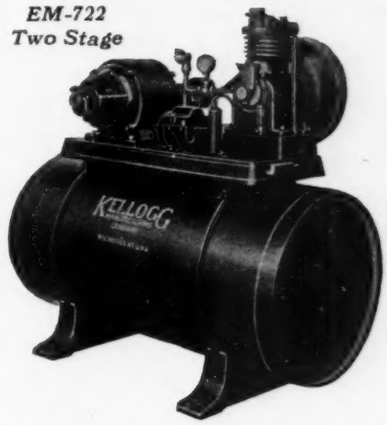
You furnish the bottles—Milk Bottles—they fit the hand.

Spouts		Trays	
Six	$2.00	For 6 Bottles	$1.00
Eight	2.65	For 8 Bottles	1.35
Twelve	3.60	Not including spouts	

C. C. Van Tine
Bartlesville Oklahoma

It Pays to Buy a Kellogg

EM-722
Two Stage



$245

There's a lot of talk about how much the dollar has shrunk.

Not so when you buy a Kellogg EM-722 Air Compressor for heavy duty.

You get your money's worth.

Ask any Kellogg owner or write us.

Kellogg Manufacturing Co.
Rochester, N.Y.

Beyond Compare for Pumping Air

THE CAUSE

"**All right,** let's see what Peerless 64 and the Miller Re-Sale Plan can do," said Hugh H. Hamilton, Youngstown, O., jobber, as he signed a Peerless 64 contract late last July.

"**We'll put** the Miller R. S. P. on the job the minute Peerless 64 is on sale in Youngstown," replied F. L. Miller, vice-president, Miller Petroleum Co.

REFINERY-TANK WAGON MARKETS

Mid-Continent Gasoline Markets Advance with the Tank Wagon

Staff Special

TULSA, Jan. 31

MID-CONTINENT gasoline markets advanced sharply again this week. With an additional advance in price of crude posted by the Prairie Oil & Gas Co. and a third advance of 1 cent in the tank wagon prices in the Standard Oil Co. of Indiana territory the tank car market has followed suit by advancing a full cent per gallon on its own account.

Lubricating oil prices were advanced from 1 to 2 cents per gallon this week by important Independent refiners in Group 3. New lists were being sent out today by virtually every manufacturer of lubricating oils in the field.

Kerosene, home heating distillates, gas and fuel oils have been featureless throughout the week. Trading has been brisk enough to keep prices at their former levels but all eyes have been focused on gasoline.

Since the beginning of January gasoline has advanced 3 cents per gallon at the refinery in tank car lots. On Jan. 1 U. S. Motor gasoline was selling at 7¼ to 8 cents per gallon. The advance in tank car prices during the month has been identical with the total of the three tank wagon advances posted by the Standard of Indiana.

Whole Structure Higher

During January price of 36 gravity crude oil advanced from $1.25 to $1.70 per barrel at the well. The relationship between the price of gasoline and the price of crude has not changed materially during the month. Today gasoline at 11 cents per gallon is bringing 2.7 times the price of 36 gravity crude. At the beginning of the month it was selling at 2.6 times the price of crude.

Gasoline has been the only product, however, which has kept pace with the price of crude. Fuel oil has advanced only 5 cents per barrel while crude has advanced 45 cents per barrel. Kerosene has advanced only ⅛ cent per gallon. Gas oil is unchanged and stove distillates have slipped slightly.

From the standpoint of refinery markets as compared with crude the position of manufacturers did not improve during January despite the fact that gasoline price advanced more than 30 per cent.

Gasoline Stocks Low

The statistical position of Mid-Continent refiners is still excellent. During the four weeks ended Jan. 23 the 119 refineries in the Mid-Continent which report to National Petroleum News have produced 100,276,000 gallons of gasoline and shipped 90,167,000 gallons leaving accumulations of stock of only 10,109,000 gallons. Kerosene stocks have been reduced 3,000,000 gallons to 18,887,000 gallons and gas and fuel oil stocks have been cut 2,500,000 gallons to 113,350,000 gallons. On Jan. 26, 1923, 135 plants reporting to the Western Petroleum Refiners Association, held in storage 120,898,000 gallons of gasoline.

Refiners are in a position now where they probably will not be forced to push gasoline out in the spot market in excess of the demand during February. On the contrary many refiners are planning to increase their storing programs during February. In place of shipping 90 to 95 per cent as they did in January some plants expect to ship only 75 to 80 per cent.

The history of the Mid-Continent refinery market in January last year was almost identical with that of the month just closed. On Dec. 31, 1923, U. S. Motor gasoline was selling at 8¾ to 9 cents per gallon in Group 3. The price advanced during the month 3 cents per gallon to 11½ to 11¾ cents on Jan. 28. The Standard of Indiana advanced its tank wagon 2 cents during January and had advanced the price 2 cents just before the new year opened.

The peak of gasoline prices in Group 3 was reached during February last year and the average of the month was above that of January by a small fraction although the market slipped off during the latter part of the month. The market decline in late February was caused by distress gasoline in the hands of refiners who needed money to finance their operations.

Marketing students in this area are of the opinion today that there will be little or no distress gasoline in the Mid-Continent during the coming month. They base this on the fact that refinery stocks are so much lower than they were a year ago that the manufacturers will be able to take care of their inventory accumulations without financial distress. It is generally predicted that the February level of gasoline prices will be higher than that of January and that crude and tank wagon prices have not reached the top of the present upward movement.

No Futures Offered

With the exception of sales being made to exporters refiners are keeping their gasoline sales on a strictly spot basis. It would be virtually impossible today to obtain a price on any grade of gasoline to be delivered over February.

For that matter a good many refiners have no open quotations on gasoline for even spot shipment. Changes have been coming with such rapidity that refiners have been afraid to sell for fear they would not get enough.

Some resale agents have been able to obtain a little gasoline in advance of the recent tank wagon changes by offering what appeared to be high prices at the time. But the quantity of gasoline in the hands of brokers is believed to be relatively small.

Export Buying Continues

Domestic gasoline buying has not been heavy during the past week. Jobbers generally waited during the first part of the week for the market to settle down from the previous tank wagon and crude advances. Instead of doing that they went up again and buying is still slack from domestic sources.

Additional export purchases were made during the week for shipment

(Continued on page 117)

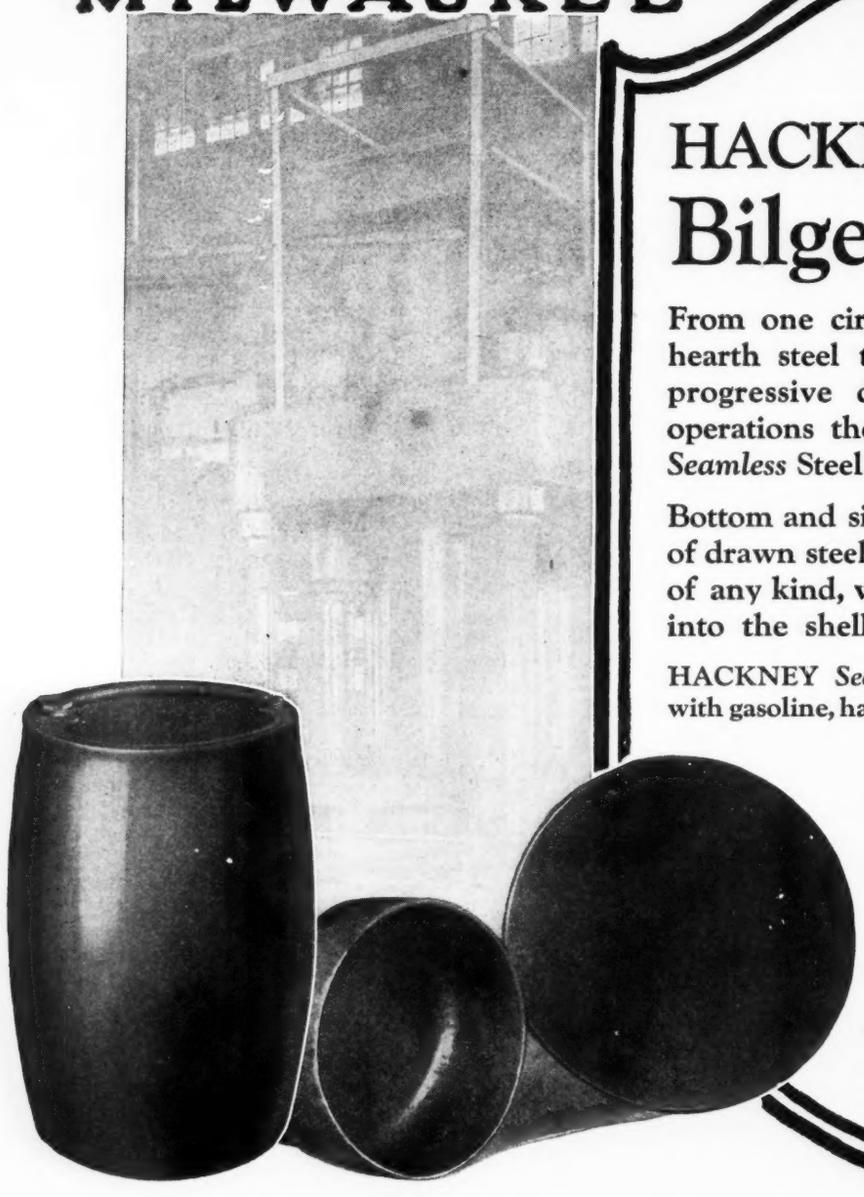
All prices and market information printed herein have been gathered by the staff of National Petroleum News from reliable sources and so far as can be ascertained thoroughly represent the going market as defined for each product on the date given for those particular prices. Both buyers and sellers have been checked in the gathering of this information and actual sales studied.

These prices and this information are subject at all times to correction for errors. Anyone having knowledge of any facts which would indicate anything different from the information which is given, is especially urged to send in those facts to the head office of National Petroleum News at once, or take them up with the nearest representative. All such facts will be promptly and thoroughly investigated.

The staff of National Petroleum News is cognizant of the fact that this market information has come to have a high standing in the industry. It wants to not only maintain that standing, but to improve it and to that end, invites the co-operation of the entire oil industry.

Hackney

MILWAUKEE



HACKNEY *Seamless* Bilged Barrels

From one circular flat sheet of open hearth steel there is pressed through progressive drawing and annealing operations the shell of a HACKNEY *Seamless* Steel Bilged Barrel.

Bottom and side is a continuous piece of drawn steel, without a weld or seam of any kind, while the head is pressed into the shell and brazed with brass.

HACKNEY *Seamless* Bilged Barrels, filled with gasoline, have gone through fires without exploding, and five, ten, fifteen years is their life in regular constant service.

Refiners and jobbers tell us frankly that HACKNEY Drums and *Seamless* Bilged Barrels are a source of profit that cannot be overlooked.

Catalog Bulletins and Prices on request

PRESSED STEEL TANK COMPANY

Manufacturers of Seamless Bilged Barrels, Seamless Pressure Tanks, Hackney Drums

General Sales Office:
210 S. La Salle Street, CHICAGO

General Offices and Works:
MILWAUKEE, WIS.

Woolworth Building
NEW YORK

PRESSED STEEL TANK CO.

Please send us copies of catalog Bulletins and quote us on the following:

.....HACKNEY Seamless Bilged Barrels

.....HACKNEY Drums

Firm Name.....

Address.....

Town..... *State*.....

Attention of..... *Pos*.....

Refinery Markets on Light Oils and Lubricants

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas, California

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices Feb. 2	Prices Jan. 26	Prices Jan. 19
52-54 Naptha	12 -12½	10¾-11¼	10¼-10½
54-56 Naptha	12½-13	11¼-11¾	10½-11
58-60 Gasoline	13¼-13½	12 -12¼	11 -11¼
60-62 Straight-run gasoline	14 -14½	13 -13½	12 -12¼
62-64 Straight-run gasoline	15 -15½	14 -14½	13 -13¼
64-66 Straight-run gasoline	16¼-16½	15 -15½	14¼-14½
68-70 Straight-run gas 350 E.P.	17 -17½	16½-17	15½-16
68-70 Straight-run gas. 305-320 E.P.	-18½	18 -18½	17 -17½
70-72 Straight-run gas. 300-305 E.P.	-19	18½-19	-18
OKLAHOMA			
48-50 450 E. P. Naptha	10 -10¼	8½- 9	- 7½
50-52 450 E. P. Naptha	10¼-10½	8¾- 9¼	7½- 7¾
56-58 450 E. P. gasoline	10½-10¾	9 - 9½	8 - 8¼
58-60 U.S. Motor 437 E.P. 131 i.b.p.	-11	9½-10	8½- 8½
60-62 400 E. P. gasoline	12½-12¾	11 -11¼	- 9¾
64-66 375 E. P. gasoline	14¼-14½	12¾-13	-11½
68-70 350 E. P. gasoline	15 -15¼	13¾-13½	11¾-12
NORTH TEXAS			
48-52 450 E. P. Naptha	10 -10¼	8¼- 8¾	7½- 7¾
56-58 450 E. P. gasoline	10¼-10½	8¾- 9¼	8¼- 8½
58-60 450 E. P. gasoline	10½-10¾	9¼- 9½	- 8½
58-60 U. S. Motor gasoline	11 -11¼	9½-10	- 8¾
60-62 400 E. P. gasoline	12¼-12¾	11 -11½	-10
64-66 390 E. P. gasoline	14 -14¼	12¼-12¾	-11¼
64-66 375 E. P. gasoline	14¼-14½	12½-13	11½-11¾
68-70 350 E. P. gasoline	-15	-13¼	12 -12¼
NORTH LOUISIANA			
58-60 450 E. P. gasolin	10½-11	9¾-10	8½- 8¾
58-60 U. S. Motor gasoline	11 -11½	10 -10¼	9 - 9¼
64-66 390-400 E. P. Gasoline	14¼-14½	13 -13¼	11¾-12
64-66 375 E. P. gasoline	14½-14¾	12¾-13	11½-11¾
ARKANSAS			
58-60 450 E. P. gasoline	11 -11¼	9¾-10¼	8½- 8¾
58-60 U. S. Motor gasoline	11¼-11½	10 -10¼	8¾- 9
64-66 375 E. P. gasoline	14½-14¾	12¾-13	11¾-12
CALIFORNIA			
54-56 U. S. Motor gasoline	- 9	- 9	- 9

Note: This is iwthout the 2-cent state tax included in the price by California refiners for shipments within the state.

NATURAL GASOLINE

OKLAHOMA			
Grade Double A	10 -10½	9½- 9¾	- 9
Grade A	10¼-10½	9½-10	- 9¼
Grade Double B	9½-10	8½- 8¾	- 8½
Grade B	9½-10	8¾- 9	- 8½
Grade C	9 - 9½	- 8½	7¾- 8

NOTE—Specifications adopted by Ass'n of Nat. Gaso. Manufacturers:
Grade Double A—80-87.9 gravity, 90% recovery, not over 375 E. P.
Grade A—72-79.9 gravity, 90% recovery, not over 375 E. P.
Grade Double B—84-92 gravity, 85% recovery, not over 375 E .P.
Grade B—76-83.9 gravity, 85% recovery, not over 375 E. P.
Grade C—80-90 gravity, 78% recovery, not over 375 E. P.

NORTH TEXAS			
*Grade Double A	10 -10½	9½- 9¾	- 9
*Grade A	10¼-10½	9½-10	- 9¼
*Grade Double B	9½-10	8½- 8¾	- 8½
*Grade B	9½-10	8¾- 9	- 8½
Grade C	9 - 9½	- 8½	7¾- 8

*F. O. B. Breckenridge.

CALIFORNIA			
73-78 375 E. P.	-12	-12	-12
OKLAHOMA NATURAL GASOLINE—BLENDS			
64-66 435-440 E. P.	10½-10¾	9 - 9½	- 8½
NORTH TEXAS			
64-66 435-440 E. P.	10¾-11	9½- 9¾	8½- 8¾
PENNSYLVANIA			
68-70 Grav. 437 E. P.	12½-13	12¾-12½	11¾-12
64-66 Grav. 437 E. P.	12½-13	12¾-12½	11¾-12
60-62 Grav. 437 E. P.	12½-13	11¾-12	-11¾
68-70 Grav. 420 E. P.	13¼-14	13¾-13½	12½-13
68-70 Grav. 400 E. P.	14½-15	14 -14¾	-13½

BURNING OILS

PENNSYLVANIA			
45 Water White Kerosene	7¼- 7½	7¼- 7½	- 7½
46 Water White Kerosene	7¾- 8	7¾- 8	- 7¾
47 Water White Kerosene	8¼- 8½	8¼- 8½	- 8¼
500 Burning Oil	7¾- 8	- 7¾	7¾- 8
OKLAHOMA			
40-42 Prime White Distillate	4¼- 4¾	4¼- 4¾	4¼- 4¾
41-43 Water White Kerosene	- 4½	4¾- 4½	4¾- 4½
42-44 Water White Kerosene	4¾- 4¾	4¾- 4¾	4¾- 4¾
NORTH TEXAS			
41-43 Water White Kerosene	4¾- 4½	4¼- 4¾	4¼- 4½
42-44 Water White Kerosene	4½- 4¾	4½- 4¾	4½- 4¾
NORTH LOUISIANA			
41-43 Water White Kerosene	4¾- 5	4¾- 4¾	4¾- 4¾
ARKANSAS			
41-43 Water White Kerosene	5 - 5¼	5 - 5¼	5 - 5¼
42-44 Water White Kerosene	5¼- 5¼	5¼- 5½	5¼- 5½
CALIFORNIA			
40-42 Water White Kerosene	-14	-14	-14

NEUTRAL OILS

PENNSYLVANIA	Prices Feb. 2	Prices Jan. 26	Prices Jan. 19
(Viscosity at 70°F.)			
220 Vis. No. 3 Assoc. Filt	-29	28 -29	28 -29
200 Vis. No. 3 Assoc. Filt	26 -26½	25½-26	-25½
180 Vis. No. 3 Assoc. Filt	24 -24½	23½-24	-23½
150 Vis. No. 3 Assoc. Filt	22 -22½	21½-22	21½-22
(Non-Viscous)			
34 Grav. 350-360 Flash	- 8½	- 8½	8 - 8½
36 Miners Neutrals 300-305 Flash	7½- 8	7½- 8	7 - 7½
OKLAHOMA			
(Viscosity at 100°F.)			
70 Vis. No. 2½-3 color	6 - 6½	4½- 4½	4¼- 4½
100 Vis. No. 2 color	7½- 8	4¾- 5	4¾- 5
100 Vis. No. 2½-3 color	7 - 7½	4½- 4½	4½- 4½
150 Vis. No. 3 color	8¾- 9	7½- 7½	7½- 7½
150 Vis. No. 4 color	8½- 8¾	6¾- 7	6¾- 7
180 Vis. No. 3 color	9½- 9¾	8¾- 9	8¾- 9
180 Vis. No. 4 color	9¾- 9½	8½- 8½	8½- 8½
180 Vis. No. 5 color	9 - 9½	7¾- 8	7¾- 8
200 Vis. No. 3 color	11 -11¼	10½-10½	10½-10½
200 Vis. No. 4 color	10¾-11	9¾-10	9¾-10
200 Vis. No. 5 color	10½-10¾	9½- 9½	9½- 9½
220 Vis. No. 3 color	13¼-13½	11¾-12	11¾-12
220 Vis. No. 4 color	12¾-13	11 -11¼	11 -11¼
220 Vis. No. 5 color	12¼-12½	10½-10½	10½-10½
240 Vis. No. 3 color	14¾-15	13¾-14	13¾-14
240 Vis. No. 4 color	14¼-14½	13 -13¼	13 -13¼
240 Vis. No. 5 color	13¾-14	12¼-12½	12¼-12½
280 Vis. No. 3 color	17¼-18	16½-17	16½-17
280 Vis. No. 4 color	16¾-17	15¼-15½	15¼-15½
280 Vis. No. 5 color	15¾-16	13¾-14	13¾-14
300 Vis. No. 5-6 color	17¾-18	16¾-17	16¾-17
GULF COASTAL			
(Viscosity at 100°F; cold test 0)			
100 Vis. No. 2 Color Unfilt. Pale	9 -10	8½- 9	8½- 9
200 Vis. No. 3 Color Unfilt Pale	14 -14½	12½-13½	12½-13½
300 Vis. No. 3 Color Unfilt Pale	16½-17	15 -15½	15 -15½
500 Vis. No.3½ Color Unfilt. Pale	18½-19	17 -18	17 -18
750 Vis. No. 4 Color Unfilt. Pale	23½-24	22½-23	22½-23
200 Vis. No. 5½ Color Red Oil	12½-13	11½-12	11½-12
300 Vis. No. 5½ Color Red Oil	14 -14½	13½-14	13½-14
500 Vis. No. 6 Color Red Oil	16 -16½	15 -15½	15 -15½
750 Vis. No. 6 Color Red Oil	21½-22	20½-21	20½-21
CALIFORNIA			
(Viscosity at 100°F.)			
100 Vis. No. 2 color	13½-14½	13½-14½	13½-14½
100 Vis. No. 3 color	9 -10	9 -10	9 -10
200 Vis. No. 3 color	14½-15½	14½-15½	14½-15½
300 Vis. No. 3 color	14 -16	14 -16	14 -16
450 Vis. No. 3½ color	19½-20½	19½-20½	19½-20½
550 Vis. No. 3 color	21½-22½	21½-22½	21½-22½
600 Vis. No. 3½ color	23½-24½	23½-24½	23½-24½
100 Vis. No. 5 color	8 - 9	8 - 9	8 - 9
200 Vis. No. 5 color	13½-14½	13½-14½	13½-14½
300 Vis. No. 5 color	14 -15	14 -15	14 -15
400 Vis. No. 5 color	16 -17	16 -17	16 -17
500 Vis. No. 5 color	17 -18	17 -18	17 -18
600 Vis. No. 6 color	18 -19	18 -19	18 -19
700 Vis. No. 7 color	19½-20½	19½-20½	19½-20½

CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Bright Stock	30 -35	29 -34	29 -34
150-160 Vis. at 210° Bright Stock	27 -31	26 -30	26 -30
Medium Filtered Stock	16 -17	16 -16½	16½-17
600 Steam Refined Olive Green	9 -10	8½- 9½	8 - 9
600 Steam Refined Dark Green	6½- 8	6½- 7½	6 - 6½
Black Oil	4¾- 5	4¾- 5	4½- 4¾
PENNSYLVANIA			
(1-inch Immersion Test)			
600 Steam Refined	23 -24	22¾-23	22¼-22½
635 Steam Refined	-28	-27	27 -28
650 Steam Refined	29 -30	29 -30	28½-29½
600 Flash	-33	32 -33	32½-33
600 Warren E	-27	-26	25¾-26
600 Oil City E	-26	-25	-25
600 Filtered D	-32	31 -32	32½-32
Cold Test Stocks (bright filtered)	-40	39 -40	39 -40
Cold Test Stock (dark filtered)	-38	37 -38	37 -38
Black Oil	- 8	- 8	7½- 8

(Note—Prices of total immersion test goods average 1 to 1½ cents per gallon higher.)

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

"Be Square Products"

BARNSDALL

Engaged in Every Branch of the Petroleum Industry

SUPERIOR QUALITY LUBRICATING OILS

From our own High Grade Crude—
Transported to our own Modern Refinery—
Through our own system of Pipe Lines—
Where it is scientifically refined
into various grades of Red and Pale
Oils, Bright Stock, Filtered Stock,
Steam Refined Stock, Motor Oils,
Tractor Oils and Parrafine
Wax and then shipped to the
Markets of the World in our
own fleet of Steel Tank Cars

Pioneer Manufacturers of Western Cylinder Stocks

BARNSDALL REFINING COMPANY

Subsidiary Barnsdall Corporation

910 South Michigan Ave., Chicago, U. S. A.

New York Pittsburgh Detroit St. Louis Kansas City St. Paul Los Angeles Tulsa

Foreign Offices:
Paris Antwerp Buenos Aires

Cable Address: Bigheart, Chicago

Refinery Markets On Wax And Heavy Oil Products

Pennsylvania. Oklahoma. North and South Texas. Louisiana, Arkansas, California

WAX

PENNSYLVANIA	Prices Feb. 2	Prices Jan. 26	Prices Jan. 19
	(Per Pound New York)		
122-124 White Crude Scale	– 6	5¾– 6	5¾– 5¾
124-126 White Crude Scale	– 6	– 6	5¾– 6
OKLAHOMA			
	(Per Pound Group 3)		
124-126 White Crude Scale	5½– 5¾	5¾– 5¾	5¾– 5¾
CALIFORNIA			
White Crude Scale	7½– 8	7½– 8	7½– 8

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil	6¾– 7	6½– 6¾	6½– 6¾
30-34 Fuel Oil	6¼– 6½	– 6¼	– 6¼
OKLAHOMA			
38-40 Straw Distillate	– 4	– 4	– 4
36-38 Straw distillate	– 3¾	– 3¾	– 3¾
32-36 Gas oil	– 3¾	– 3¾	– 3¾
26-30 Fuel oil (Bbl.)	1.32½–1.35	–1.40	–1.40
24-26 Fuel oil (Bbl.)	1.35 –1.37½	–1.35	–1.35
24-26 Fuel oil (Buyers' cars)	1.35 –1.37½	–1.35	1.32½–1.35
20-22 Fuel oil (Bbl.)	1.40 –	–1.32½	1.30–1.35

NORTH TEXAS	Prices Feb. 2	Prices Jan. 26	Prices Jan. 19
38-40 Straw Distillate	3¾– 4	3¾– 4	3¾– 4
32-36 Gas Oil (Gal.)	3¾–	– 3¾	3½– 3¾
24-26 Fuel, per bbl	1.35–	1.30–1.35	–1.35
GULF COASTAL			
Fuel	1.75–1.85	1.65–1.75	1.65–1.75
Gas Oil	5 – 5¼	4¾– 5	4½– 4¾
NORTH LOUISIANA			
32-36 Gas Oil (Gal.)	3¾– 3¾	3½– 3¾	3½– 3¾
18-22 Fuel Oil (Bbl.)	1.40–	1.30–1.35	–1.30
ARKANSAS			
38-40 Distillate	4¼– 4½	4¼– 4½	4¼– 4½
32-36 Gas Oil	4 – 4¼	4 – 4¼	4 – 4¼
20-24 Refinery Fuel Oil (Bbls.)	1.30–1.33	1.30–1.35	–1.30
Smackover Crude Fuel (Bbls.)	1.30–1.35	1.30–1.35	1.25–1.30
East Field Crude Fuel (Bbls.)	1.30–1.35	1.30–1.35	1.25–1.30
CALIFORNIA			
14-18 Fuel Oil (Bbl.)	1.40	1.40	1.40
14-18 Bunker Oil (Bbl.)	1.40	1.40	1.40
24-30 Gas Oil (Bbl.)	1.65	1.65	1.65
27 + Diesel Oil (Bbl.)	1.65	1.65	1.65

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

(Continued from page 113)

over the next 30 days. The Imperial Oil Marketing Co. bought 1,500,000 gallons of 64-66, 275 end point gasoline and 500,000 gallons of U. S. Motor. Sinclair Refining Co. was buying actively and other purchasers appeared to be interested.

The supply of high gravity gasoline for either export or domestic shipment is low and buyers are forced to shop around in order to pick up any quantity. More refiners are planning to make high gravity gasoline, however, so that the demands of foreign buyers may be satisfied. Quotations on 64 today ranges as high as 15 cents per gallon in some quarters. On 60-62 sales are being made to domestic consumers at 12½ to 12¾ cents per gallon.

Natural Gasolines

Prices of natural gasoline have risen steadily during the past two weeks but have not moved as rapidly as straight run refinery goods. There does not appear to be any surplus on the market of any grade and manufacturers are demanding higher prices for February delivery than they are for spot.

Grade A gasoline is still the most difficult to buy. Quotations today range from 10¼ to 11 cents per gallon. Sales were made at 10½ and manufacturers expect the price of actual sales to reach the level of U. S. Motor next week. Grade B is selling at 9½ to 10 cents and Grade C at 9 to 9½ cents.

Inquiry for kerosene has been somewhat more lively during the past few days and there has been a slight tendency upward in the price level. On 41-43 water white refiners are unanimously asking 4½ cents per gallon today while earlier in the week there were sales being made an eighth lower.

It is almost time for jobbers to begin laying in their supply of kerosene for spring plowing. Of course the bulk of this business will not develop until the latter part of the month.

Stove distillates are quiet. Movement has been about enough to take care of current production and prices have been maintained at 4 cents on 38-40 without change for several weeks.

Lubricating Oils

Marland Refining Co. advanced its prices of lubricating oils from 1 to 2 cents per gallon on Jan. 29. The advance included bright stocks as well as neutrals.

Today Cosden & Co. issued new lists showing advances ranging as high as 2 cents per gallon. Other refiners throughout the field are meeting the advance. Generally they have withdrawn prices and will issue new lists on Monday.

Bright stock prices now range from 27 to 35 cents per gallon, depending on the grade. Steam refined oils are fractionally higher with some refiners asking 10 cents per gallon on olive green. Black oil is up to 5 cents per gallon.

Non-viscous pale neutrals were advanced more sharply than other grades this week. They have been extremely low during recent months so that some refiners have been virtually out of the market and have been running the stock to their crackers.

Demand for lubricating oils has been much more satisfactory since the whole oil market structure has been advancing.

Wax is still in active demand. One refiner obtained 5¾ cents for 25 tons of white crude scale this week for prompt delivery. One exporter was offering 5½ cents for early spring shipments.

Refiners with railroad fuel oil contracts are now obtaining prices more in line with the spot market as a result of the crude advances. Railroads are paying from $1.27½ to $1.35 per barrel today on the basis of crude.

Small sales of 24-26 fuel oil have been made this week as high as $1.40 per barrel. For the most part, however, trading is going on at the former level of $1.35 per barrel. Industries in the district surrounding Chicago are taking good quantities of fuel and supplies are not accumulating.

Gas oil has been steady throughout the week at an average price of 3¼ cents per gallon.

Early Spring may be Groundhog's Gift

CHICAGO, Feb. 2.—All true "loregicians" know that the fate of the oil business was proclaimed by the weather man on Jan. 31 when he announced that February would begin with rain and snow. Wherever that prediction comes true, winter will be short and spring will come early. For it does not matter whether you think Groundhog day is the first or the second day of February, if it snows both days the said woodchuck will not see his shadow when he comes out to look the situation over.

The weather man was a little undecided about the region of the Great Lakes. Maybe the first few days of the month will be fair in the Lakes states and they will thereby be assured their usual late arrival of spring. But in the Ohio river valley and in the upper Mississippi and lower Missouri river valleys the outlook is for snow early in the week and again before it closes. Even the Great Lakes region at the middle and last of the week will have snow. Temperatures normal or below will prevail throughout the middle west.

Last week's weather was not half bad. It started off cool and fair and got warmer without raining. By the latter part of the week there was a hint of spring in the air and the sun was bright.

Spot Gasoline Market at Chicago Keeps Pace with Tank Wagon

CHICAGO, Jan. 31.—With three 1-cent gasoline tank wagon advances in Standard Oil Co. of Indiana territory, evenly distributed over 10 days, the Chicago market has been on the advance all this week. Although the price revisions affected gasoline only, kerosene became a shade stronger by taking on some reflected glory.

The spot price of U. S. Motor gasoline in Chicago has advanced as much as the Indiana tank wagon schedule. The tank car market here is a resale market based generally on Group 3 prices.

Before the price boost of Jan. 23, Motor gasoline was quoted at 8¾ cents per gallon. Refiners were fairly well contented at that figure but jobbers were on a slim margin and were not buying briskly because they expected prices to ease off; but the refiners' guess on a coming crude advance proved correct. Now the level is 3 cents higher and the jobber's margin only slightly improved. Thus far the refiners have three-fourths of the advance.

In other words, the spot market on gasoline which was 8¾ cents before the three advances is now 11 cents and firm. It was virtually impossible to buy in Group 3 today under 11 cents, and the market does not seem soft to the Chicago marketers for if it did they would be shading 11 cents on material bought earlier. Shading is not being done. The lowest price on U. S. Motor through Chicago is 11 cents and brokers with nothing bought are obliged to ask 11¼ for their material and are making some sales.

There has been a firmer tone to the kerosene market since the gasoline advances in spite of the fact that jobbers are bulying in only a routine way. The going price is 4½ cents. The price of stove distillate has not changed this week. It is undoubtedly the dullest item in the market, being quoted at 4 to 4¼ cents to a slow market. The slow demand is due probably to recent mild temperatures.

Gas oil is firmer. Such of it as is obtainable can be had at about last week's prices, 3¾ to 4 cents, but the material is growing scarce in the open market because refiners are withdrawing it from the market and storing it to crack. The falling off in both production and stocks of crude has had much to do with pulling gas oil off the market to be held against the day when gasoline demand may be keen. That situation is not noticeable as it would be in colder weather when the demand from the domestic consuming trade would be stronger.

Fuel oil prices are about the same as last week but that market to is slightly softer. The few refiners asking $1.40 a barrel are not selling much and $1.35 is the prevailing quotation, and the figure at which most business is done. The demand for 24-26 is only fair, as many large buyers stocked up on the advancing market and hope their storage will see them over the peak point of consumption. Smackover crude fuel once more is profiting by its more consistent patronage and is moving in fair volume at $1.30 to $1.35.

Crude and Tank Wagon Advances Upset Pennsylvania Market

CLEVELAND, Feb. 2.—Pennsylvania refinery markets have been getting settled lately only to be upset again in a day or two by advances in prices of crude oil or the gasoline tank wagon markets through the eastern states.

Prices of gasoline in tank car lots have been moving steadily upward with the prices of crude oil and gasoline at tank wagon. Demand is normal for the season although the heaviest snows in several years have fallen through New York, Pennsylvania and Canadian territory into which Pennsylvania gasoline is moved.

Greater interest is being shown in cylinder stocks than for several weeks and the supply available for the spot market is yet small. Some improvement has been noted in the neutrals market and prices are about 1 cent per gallon higher than a week ago.

Quotations on cylinder stocks vary a great deal. For 600 fire steam refined, A. S. T. M. test, prices ran from 23 to 24 cents. Total immersion test 600 steam refined was 25 cents. For the higher fire test stocks, the quotations were as high as 33 cents for 650 total immersion test while 1-inch immersion test was only 29½ to 30 cents.

Fuel oil is a great deal scarcer. Refiners with cracking plants have been buying 36-40 straw and where freight rates have been favorable have been paying as high as 7 cents. A little was still available today at 6½ cents but perhaps half of the refiners in the territory were unwilling to move any under 6¾ cents. The 30-34 grade also was higher.

Kerosene continues rather quiet and has not rallied to the higher costs of raw material as have other products. Wax has been firm with a tendency to advance but no sales above 6 cents, New York have been reported so far.

Except for refiners operating on Bradford crude who in most cases have their own pipe lines, the crude supply has been tight. Recent price advances seem to have made the situation more tense and some plants are able to operate at only 50 to 60 per cent. Producers are now holding for $4 crude.

Kentucky

Prices of refined goods have followed the upward movement of crude oil prices in the central Kentucky market. Demand is good and one refiner reported being sold up on 64-66 and 68-70 gasoline over the first half of February. All burning oils were stronger. Gasoline quotations today were: 58-60, 13 cents; 60-62, 13½; 64-66, 15½, and 68-70, 16 cents, the latter two prices being only nominal. For 42-44 water white kerosene, quotations were 7½ to 7¾ cents; 34-38 gas oil, 6, and 24-26 fuel oil, 5½ cents.

Tank Wagon Prices in Canada

Tank wagon and service station prices of gasoline, and tank wagon prices on coal oil, at the following points as of Jan. 30, 1925:

	Gasoline T.-W. per gal.	Gasoline S.-S. per gal.	Coal oil* per gal. T.-W. wh'les'le
Vancouver	21 cts.	25 cts.	23 cts.
Calgary	29.5	33	26.5
Edmonton	30.5	34	27.5
Regina	28.5	32	25.5
Winnipeg	25.5	29	22.5
Fort William	25.5	29	22.5
Cochrane	27.5	31	24.5
Toronto	22.5	26	20
Ottawa	23.5	27	21
Montreal	22.5	26	20
Quebec	24.5	28	22
Moncton	27.5	31	25
St. John	25.5	29	23
Halifax	25.5	29	23
Sydney	27.5	31	25
Charlottetown	25.5	29	23

*Water white or equivalent

Taxes imposed on sale of gasoline by Canadian provinces:

British Columbia	3 cents per gal.
Alberta	2 " " "
Manitoba	1 " " "
Quebec	2 " " "
Prince Edward Island	2 " " "

British Columbia also imposes a tax of ½ cent per gallon on fuel oil.

Move into Attractive Office

WICHITA, KAN.—J. P. Cantrell Oil Co., distributors of Waverly products at Springfield, Mo., recently moved into their new office building which is one of the best equipped Independent jobbing offices in the middle west, according to E. R. L. Boyd, district manager at Wichita for the Waverly Oil Works Co. All modern conveniences have been installed and furniture, rugs, drapes, etc., were selected with great care, Mr. Boyd reports.

Mr. Cantrell has made his station and warehouse grounds as attractive as possible, with terraced lawns, roses and flowers of all kinds, and he is at present setting out over 500 imported tulips.

Tank Wagon, Service Station Markets
Gasoline and Kerosene

BELOW are given in cents a gallon, the tank wagon price of gasoline without the special taxes levied against motor fuels by many states, the amount of the state taxes, the total tank wagon price, with tax added in and the service station or retail price of gasoline as quoted by the Standard Oil Companies in their various marketing territories. The right hand column is the tank wagon price of kerosene. By tank wagon price is meant the price to resale agents or dealers. Usually this price does not apply to sales to consumers from tank wagons.

Prices in effect February 2

S. O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total	Oil S.S.	T.W.
Atlantic City, N. J.	17	0	17	19	13
Newark, N. J	17	0	17	19	13
Annapolis, Md	18	2	20	*	12
Baltimore, Md	17	2	19	21	11
Cumberland, Md	18	2	20	22	12 5
Washington, D. C	17	2	19	21	12 5
Danville, Va	18	3	21	*	13 5
Norfolk, Va	18	3	21	23	13 5
Richmond, Va	17	3	20	22	13 5
Roanoke, Va	18	3	21	23	13 5
Petersburg, Va	18	3	21	*	13 5
Charleston, W. Va	16	2	18	20	13 5
Clarksburg, W. Va	17	2	19	21	13 5
Keyser, W. Va	17	2	19	*	13 5
Parkersburg, W. Va	16	2	18	20	13 5
Wheeling, W. Va	16	2	18	20	13 5
Williamsburg, W. Va	17	2	19	*	13 5
Charlotte, N. C	18	3	21	23	13 5
Hickory, N. C	18	3	21	*	13 5
High Point, N. C	18	3	21	*	13 5
Mt. Airy, N. C	18	3	21	*	13 5
Salisbury, N. C	18	3	21	*	13 5
Charleston, S. C	18	3	21	23	14
Columbia, S. C	18	3	21	23	14

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK TERRITORY

*New York City	19 5	0	19 5	22 5	13
Albany, N. Y	19 5	0	19 5	22	13
Buffalo, N. Y	19 5	0	19 5	22 5	13
Rochester, N. Y	†19.5	0	†19 5	23 5	13
Syracuse, N. Y	19 5	0	19 5	22	12
Boston, Mass	19 5	0	19 5	23	11
Augusta Me	19 5	1	20 5	†3.5	13
Manchester, N. H	19 5	2	21 5	†4.5	13
Burlington, Vt	19.5	1	20.5	23 5	13

*In steel barrels.

†At Rochester only, as far as is known, Standard sells two grades of gasoline, the above price applying to its Socony grade, and another grade being sold 2c below this price.

ATLANTIC REFINING TERRITORY

Pittsburgh, Pa	17	0	17	*22	14
Philadelphia, Pa	17	0	17	*22	14
Allentown, Pa	17	0	17	*22	14
Erie, Pa	17	0	17	*22	14
Scranton, Pa	17	0	17	*22	14
Altoona, Pa	17	0	17	*22	14
Dover, Del	17	2	19	22	14
Wilmington, Del	17	2	19	22	14
Providence, R. I	19 5	0	19 5	23	13
Springfield, Mass	19.5	0	19 5	23	13
Worcester, Mass	19 5	0	19 5	23	13
Hartford, Conn	19 5	1	20 5	24	12
New Haven, Conn	19 5	1	20 5	24	13
Boston, Mass	19 5	0	19.5	23	11

*Contains 2-cent tax collected by retail dealer and paid by him directly to state.

S. O. OHIO TERRITORY

All Ohio points	16	0	16	18	14

S. O. KENTUCKY TERRITORY

Lexington, Ky	17	3	20	23	14
Louisville, Ky	16	3	19	21	12
Covington, Ky	14	3	17	20	14
Clarksdale, Miss	16	3	19	22	12
Jackson, Miss	16	3	19	22	10
Natchez, Miss	15.5	3	18 5	21.5	11 5
Vicksburg, Miss	15.5	3	18 5	21.5	11 5
Birmingham, Ala	17	2	19	22	14 5
Mobile, Ala	16	2	18	21	12 5
Montgomery, Ala*	18	2	20	23	13.5
Atlanta, Ga	18	3	21	24	13
Augusta, Ga	18	3	21	24	13.5
Macon, Ga	18	3	21	24	14.5
Savannah, Ga	16	3	19	22	13
Jacksonville, Fla	16	3	19	22	13
Miami, Fla	18	3	21	24	14.5
Tampa, Fla	16	3	19	22	13
Pensacola, Fla	16	3	19	22	13.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

S. O. LOUISIANA TERRITORY

	Gasoline T.W.	Tax	Total	Oil S.S.	T.W.
Camden, Ark	17	4	21	23	13
Little Rock, Ark	17	4	21	23	11
West Helena, Ark	17	4	21	23	12
Alexandria, La	16 5	2	18 5	20 5	13
Baton Rouge, La	15	2	17	19	11.5
Lake Charles, La	16.5	2	18 5	20 5	13
New Orleans, La	16 5	2	18 5	20 5	11
Shreveport, La	16 5	2	18.5	20 5	13
Bristol, Tenn	19	2	21	23	13.5
Chattanooga, Tenn	17 5	2	19.5	21.5	14.5
Knoxville, Tenn	15	2	20.5	22 5	15
Nashville, Tenn	17 5	2	19 5	21.5	13.5
Memphis, Tenn	16	2	18	20	14

MAGNOLIA PETROLEUM TERRITORY

Muskogee, Okla	14 5	2½	17	20	11
Oklahoma City	14.5	2½	17	20	11
Tulsa, Okla	14.5	2½	17	20	10
Fort Smith, Ark	14	4	18	22	11
Little Rock, Ark	17	4	21	23	11
Texarkana, Ark	15	4	19	22	10
Dallas, Tex	13	1	14	17	10
El Paso, Tex	15	1	16	19	10
Fort Worth, Tex	13	1	14	17	10
Houston, Tex	13	1	14	18	10
San Antonio, Tex	13	1	14	17	10

*Within city of Texarkana, Ark., the state tax on gasoline is 1c per gal conforming with the Texas state tax. In Texarkana district outside of the city, the 4c state tax applies.

S. O. INDIANA TERRITORY

Chicago, Ill	†17	0	†17	19	11
Decatur, Ill	16 2	0	16 2	18.2	11.5
E. St. Louis, Ill	15.1	0	15 1	17 35	10 6
Joliet, Ill	16.4	0	16 4	18.4	11.7
Peoria, Ill	16	0	16	18	11.5
Quincy, Ill	16 2	0	16 2	18.2	11 3
Indianapolis, Ind	16 2	2	18 2	20.2	11 7
Evansville, Ind	16	2	18	20	11 5
South Bend Ind	16 4	2	18 4	20.4	11.9
Detroit, Mich	16 8	0	16 8	18.8	12.2
Grand Rapids, Mich	16 7	0	16 7	18.7	12.1
Saginaw, Mich	16 9	0	16 9	18.9	12 3
Madison, Wis	16 3	0	16 3	18.3	11 5
Milwaukee, Wis	16 1	0	16 1	18.1	11 3
La Crosse, Wis	17 2	0	17 2	19.2	12 4
Minneapolis, Minn	17 2	0	17 2	19.2	12.6
Duluth, Minn	17 5	0	17 5	19.5	12.6
Mankato, Minn	17 1	0	17 1	19.1	12 4
Des Moines, Iowa	16 5	0	16 5	18 5	11 9
Davenport, Iowa	16 5	0	16.5	18.5	11.9
Sioux City, Iowa	16	0	16	18	11.5
Mason City, Ia	16.5	0	16.5	18.5	11.9
St. Louis, Mo	**15 6	2	17.6	17.9	11
Kansas City, Mo	††16 9	2	18.9	20.9	10.3
St. Joseph, Mo	**16	2	18	20	10 9
Fargo, N. D.	17.9	1	18.9	20.9	14 6
Grand Forks, N. D.	18 1	1	19.1	21.1	15 9
Minot, N. D.	18.9	1	19.9	21.9	14.6
Pierre, S. D.	18	2	20	*	13.1
Huron, S. D.	18	2	20	22	13.1
Wichita, Kans.	15.8	0	15.8	17.8	9.8
Bartlesville, Okla.	14.9	2½	17.4	19 4	9.9

†Dumps of 100 or more gallons at 16c per gallon.
*S. O. Indiana does not operate station.
**Includes city tax of ½c
††Includes city tax of 1c

S. O. NEBRASKA TERRITORY

Crawford, Neb	17	0	17	*	12.25
Omaha, Neb	14	0	14	16	11.5
McCook	17 75	0	17 75	19.75	13
Norfolk	16 75	0	16 75	18.75	12
North Platte	17 75	0	17 75	19.75	12.75
Scotts Bluff	17 25	0	17 25	19.25	12.25

*Standard has no service station here.

CONTINENTAL OIL TERRITORY

Denver, Colo	15	2	17	19	13.5
Pueblo, Colo	15	2	17	19	13.5
Casper, Wyo	15	1	16	18	12
Cheyenne, Wyo	16.5	1	17.5	19.5	13.5
Butte, Mont	17	2	19	21	15
Helena, Mont	19	2	21	23	16
Salt Lake City, Utah	18 5	2½	21	23	17
Boise, Ida	19.5	2	21.5	23.5	19
Albuquerque, N. M.	20.5	1	21.5	23.5	15.5

S. O. CALIFORNIA TERRITORY

Phoenix, Ariz	18	3	21	24	21.5
Los Angeles, Cal	11.5	2	13.5	16.5	15.5
Fresno, Cal	13.5	2	15.5	18.5	17.5
San Francisco, Cal	13	2	15	18	15.5
Reno, Nev	16.5	2	18.5	21.5	19
Portland, Ore	13	3	16	19	16.5
Seattle, Wash	13	2	15	18	16.5
Spokane, Wash	17	2	19	22	20.5
Tacoma, Wash	13	2	15	18	16.5

Week's Price Changes
Tank Wagon Market

Gasoline Advances

Standard of New Jersey.—1 cent in W. Va., D. C., and Md., 2 cents Va., No. and So. Carolina, Jan. 27. 1 cent in N. J. and Md., except Baltimore, Jan. 30.

Standard of New York.—1 cent through New York state and New England, Jan. 31.

Atlantic Refining—1 cent in Penna. and Dela., Jan. 28.

Standard of Ohio.—1 cent through Ohio, Jan. 28.

Standard of Kentucky—1 cent in Ky., except Covington which was advanced 2 cent, and 2 cents in rest of territory, Jan. 28. 1 cent in Ky. only, except at Covington, Feb. 2.

Standard of Louisiana.—1 cent through territory, Jan. 27.

Magnolia Petroleum—T.w. and s.s. 1 cent generally through Oklahoma and Texas, Feb. 2. Houston and El Paso s. s. prices only advanced 1 cent, the former to 18 cents and the latter to 19 cents. On Jan. 28, Fort Smith and Little Rock, Ark., advanced 1 cent.

Standard of Indiana.—1 cent through territory on Jan. 26, and Jan. 31.

Standard of Nebraska.—1 cent through state Jan. 28 and Jan. 31.

Continental Oil.—2 cents in Colo., Jan. 26. 1 cent through territory except Idaho, Jan. 28.

Price of Benzol Reduced

NEW YORK, Feb. 2.—Featuring the market for benzol was the announcement on Jan. 28 of a reduction of 2 cents per gallon in price of all grades. This action was attributed to the heavy increase in production. Students of the situation did not look for the cut so soon. Demand for benzol was as good as during the previous week, although many of the smaller consumers are holding off for further declines.

Stocks of benzol available for immediate delivery are fairly large. Motor fuel blenders are still purchasing fairly large quantities but other big buyers are operating cautiously. The revised prices follow.

	Feb. 2	Jan. 26
Pure, tank cars, works	22-23	24-25
90%, tank cars, works	21	21

Above are industrial grades of benzol; motor grades run 2 cents under to 2 cents over gasoline tank wagon prices at point of delivery.

Tank Wagon Prices, Painters' Naphtha

CHICAGO, Jan. 31.—Standard Oil Co. of Indiana advanced the tank wagon price of oleum spirits and V. M. & P. naphtha coincidental with the first and last recent advances in gasoline tank wagon, but did not raise the price with the second gasoline price boost. Price revision was 1 cent on Jan. 23 and 1 cent on Jan. 30.

	Feb. 2 V.M.& P. Naphtha	Oleum Spirits
Chicago	19	16
Detroit	20.7	17.2
Milwaukee	19.7	16.2
Minneapolis	21	17.5
St. Louis	18.9	15.4
New York	19	....

Complete Export Markets

New York **Gulf Coast** **California**

Export Gasoline Prices are Higher But Demand at New York Lags

NEW YORK, Feb. 2

STANDARD Oil Co. of New Jersey on Jan. 26 advanced gasoline export prices ½ to 1½ cents a gallon. Export demand however, failed to show improvement. U. S. Motor which was quoted at 11 cents a gallon in tank cars at the refinery, during the preceding week was 2 cents dearer last week.

One of the big refiners is working on two cargoes of U. S. Motor and 64-66, 375 end point gasoline, but is finding considerable difficulty in closing these deals owing to the rapid price advances. It is understood that one cargo is for 45,000 barrels for March shipment to France and the other for 56 000 barrels for late February-early March shipment to the United Kingdom.

Several refiners are reluctant to quote beyond February, and the trade is looking for a steady advance in prices during the next few weeks. The domestic consumption is much heavier than expected and jobbers are now compelled to pay 14¼ to 14½ cents a gallon in tank cars against 12 cents a week ago.

Cased gasoline prices are moving upwards and New York factors are quoting from 28.15 to 28.65 cents for U. S. Motor. Most inquiries during the last few days have been from Japan, China and the west coast of Africa. Demand from South America is disappointing, being confined to 500 and 1000 case orders.

Kerosene export buying is a trifle more spirited. Prices are firmer and water white is 7 to 7¼ cents refinery against 6¾ to 7 cents a week ago. German buyers are actively inquiring but are bidding about ½ cent below those prices. No cargo sales were located.

Demand for cased kerosene is a little better. Orders from South America were more plentiful. One Independent refiner reported the sale of 25,000 cases for March shipment to the near east. French stocks are low but orders from this source have been going direct to the Gulf of late. One refiner was working on a cargo of 45,000 barrels for February shipment to France but this deal was not closed by Saturday.

Lubricating oils are on the upward swing in sympathy with crude oil. Export demand for Pennsylvania cylinder stocks is much better and leading refiners are asking 30 cents a gallon for 600 steam refined in barrels New York although small lots were occasionally reported at 28¾ cents a gallon. German buyers have been more active and four sales of 500 barrels each were closed by one of the smaller Independents. Details were withheld.

Spindle oils are showing up a little better but prices are without important change. Black oil is firmer and demand is a little better.

The sharp advance in Diesel oil was one of the outstanding features of the market. On Tuesday the Standard of New Jersey announced an advance of 40 cents a barrel in the price, bringing its quotation up to $2.70 a barrel at the refinery. Several other refiners are still quoting the old price of $2.10 a barrel. Demand for this oil has been very good of late and it is expected that the inside price will be raised soon.

Bunker oil is in small spot demand, but there is a heavy contract movement, which along with the upturn in crude oil hastened to keep the price firm. Leading refiners are asking $1.80 a barrel f. o. b. New York harbor refinery. Export inquiries were scarce last week.

Gas oil was steady at 5¾ to 6¼ cents a gallon for 36-40, in bulk at the refinery. Standard of New Jersey advanced its price 1 cent a gallon to 6¾ cents early in the week but other refiners did not meet this increase. For 28-34 the price was unchanged but steady at 5½ cents a gallon.

Waxes were much firmer. Demand from England, France and Germany has improved considerably. Most of these countries are purchasing white crude scale, and one refiner reported three purchases of 75 tons each in one day. Fully refined wax is moving in a slightly larger way. The demand for match wax is fair.

Medicinal oils have not shown any change. Petrolatums are firm although a little inferior snow and lily white is offering around a trifle below 12¾ and 10½ cents a pound, respectively.

N. Y. Domestic Market

The following light oil, gas and fuel oil prices are F. O B. New York refineries being Products made from Domestic (including California) and Mexican Crudes.

	Feb. 2	Jan. 26
U. S. Motor Gasoline, Tank Cars Delivered	-14¼	-12
U. S. Motor Gasoline, Tank Cars Bayonne	-13¼	-11
Kerosene, 43-150 W W Tank, Cars Del'd	.08	.08
Grade C Bunker, f.o.b. N.Y.	1.80	1.80
Diesel Oil f.o.b. Refinery	2.10-2.70	2.10
Gas Oil, 36-40, Bulk, refinery	05¾-06	.05¾

New York Export Market

Prices below are averages of actual sales by local exporting Agencies

LUBRICATING OILS

The following prices are cooperage basis f. o. b. New York, products being manufactured by inland refineries.

CYLINDER OILS BBLS.	Feb. 2		Jan. 26	
Penna. Filtered D 600	-35		-35	
Penna. Filtered E 600	-35	38	-35	38
Unfiltered 600 s.r.	-31	30	-30	29
Unfiltered 650 s.r.	-37	36	-37	36
600 flash s. r.	-45	43	-45	
Western 600 s. r.	-15		-15	
Bloomless 30-31 grav.	-25		-25	
RED PARAFFIN (bbls.)				
300 vis. at 100°F.	23½		23½	
250 vis. at 100°F.	25		25	
175 vis. at 100°F.	-22½		-22½	
High Viscosity Paraffin	29		29	
.885 s.g. pale 100 vis. at 100°F	15-15½	15	-15½	
SPINDLE (bbls.)				
200 vis. at 100°F. Pale	21½		21½	
180 Pale	20		20	
150 Pale	17		17	
BLACK OIL (bbls.)				
25-30 cold test	-15½	14	-15½	14
15 cold test	-15½	15	-16½	15

MEDICINAL OILS

(Cooperage Basis)

(Penna. Stocks)

Domestic .875-.885 s.g. drums	1.00-1.08	1.00-1.08
Domestic .865-.870 s.g. drums	75- 80	75- 80
Russian .885-.890 s.g. 325-330 vis. drums	1.25	1.25

WAXES

(Penna. Stocks)

(F. A. S. Carload Lots)

WHITE CRUDE SCALE	Feb. 2	Jan. 26
122-124 A. m. p.	-05¾	-05¼
124-126 A. m. p.	-05¾	-05¼
MATCH		
105-108 A. m. p.	06	06
111-115 A. m. p.	06	06
FULLY REFINED		
118-122 A. m. p.	06	06
123-125 A. m. p.	06¼	06¼
125-127 A. m. p.	06¼	06¼
128-130 A. m. p.	06½	06½
130-132 A. m. p.	06¾	06¾
133-135 A. m. p.	07¼	07¼
SEMI REFINED		
122-124 A. m. p.	05¾	05¾
YELLOW CRUDE SCALE		
124-126 A. m. p.	05¾	05¾

PETROLATUMS

(Penna. Stocks)

Snow White	12¾	12¾
Lily White	10¾-11	10¾-11
Cream Petroleum Jelly	07¾	07¾
Veterinary	03¾	03¾
Light Amber	07¾	07¾
Dark Amber	03¾	03¾
Dark Green	03¾	03¾

Export Trade Checked at Gulf as Crude Oil Prices Soar

By Special Correspondent

NEW ORLEANS, Feb. 2

THE advances in crude oil prices brought about higher prices for virtually all major products last week. Export business suffered a sharp check as most big buyers were inclined to wait until the market became more stable. On the other hand, several big refiners were unwilling to quote on either grade of gasoline Saturday because of the advancing Mid-Continent markets.

Not one cargo sale was closed so far as could be learned. There were numerous inquiries but these were purely academical. On Saturday U. S. Motor was quoted at from 12 to 12½ cents a gallon, and 64-66, 375 end point gasoline at 16 to 16½ cents with most refiners predicting an advance of 1 cent in these prices by the middle of this week. Few refiners are offering beyond March shipment.

Cased gasoline also registered a 10-cent advance, and on Saturday U. S. Motor was held at $2.60 a case and 64 gravity at $2.90, cargo lots. Demand for cased goods was a little better, and a sale was reported of 25,000 cases to a far eastern buyer, presumably a Japanese concern. This will be shipped late in February by one of the big Independents. This same concern was quoting on an order for 40,000 cases February-March shipment to the Orient, but the deal was not closed by Saturday.

European buyers were keenly interested, but many of them felt the market would continue to advance for a month or so, and then react sharply. Consequently they are purchasing sparingly. Stocks of gasoline in England and France are low but distributors in both countries are inclined to purchase along hand-to-mouth lines.

Kerosene Is Stronger

Kerosene was stronger. Water white was held at 7 to 7¼ cents a gallon and prime white at 6 to 6¼ cents a gallon in cargo lots.

There were inquiries for two cargoes from Scandinavia, but buyers are bidding ½ cent below refiner's ideas, and neither materialized. The trade is talking of another ¼ cent advance early this week. Cased kerosene remained unchanged at $1.60 for prime white and $1.70 for water white. Inquiries were numerous enough but actual demand was slow. A buyer with Chinese connections inquired for 50,000 cases for March-April shipment, and it is understood this deal is still pending.

All of the zero cold test lubricating oils were up from ½ to 2 cents a gallon as the week closed reflecting the advance in Gulf Coastal crude oil price. Authorities look for another advance in price of this oil during the next 10 days, so refiners are reluctant to offer much lubricating oil even at the higher prices. German buyers have been particularly active inquiring, but are not willing to pay prices asked. One of the big Independents was negotiating for the sale of a cargo of 25,000 barrels for March shipment, but this deal is still hanging fire.

Bunker Oil Also Strong

Bunker oil is stronger but unchanged. Heavy Panuco crude oil is firm at $1.35 per barrel f.o.b. Tampico, plus taxes, and not much is offered even at this price. Grade C bunker oil is offered at $1.55 per barrel, f.o.b. Tampico, taxes included while at New Orleans the price ranged from $1.60 to $1.70 a barrel, the inside price being largely nominal owing to restricted offerings.

Gas oil also stiffened in sympathy with the crude oil. At the end of the week both transparent 26-28 and 32 plus dark oil were held at 5 to 5¼ cents. Demand from Europe was negligible although the foreign inquiry was fully up to expectations. No cargo sales have been reported in some time.

Demand for waxes is a little more active and prices were firmer. German buyers are operating along more extensive lines. British buyers are purchasing more heavily while Latin-America is a large buyer of wax for manufacture into candles.

CHICAGO, Jan. 29.—The executive committee of the National Safety Council meeting in Chicago completed all arrangements for the fourteenth annual Safety Congress, which is the national convention of that organization. It will be held in Cleveland, O., Sept. 28 to Oct. 2 inclusive. The last gathering of this kind was in Louisville, Ky., last October.

N. Y. Export Quotations

Furnished by big exporting oil companies. No actual sales. Record for statistical purposes only.

Illuminating Oils

Standard Oil of New Jersey

	Feb. 2	Jan. 26
Bulk, gal., Bayonne	6.50	6.50
Barrels, gal., Bayonne, cargo	13.50	13.50
Cases, gal., Bayonne	16.90	16.90

Prices for water white oil (150 test) are 1 cent higher than those for standard white.

Gasoline-Naptha
(Cents per Gallon)

U. S. Motor, dead bulk	14.00	14 00
U. S. Motor, cases	28.15	28 15
Export Naptha bulk	16.75	16 75
*62-63 deg. bulk	18.00	18.00
66-68 deg. bulk	19.50	19.50

*Grade changed from 64-66 to 62-63 Jan. 9.

Tide Water Oil Company
(f. o. b. Bayonne)

58-59 deg. bulk	15.00	14.50
58-59 deg. cases	28.65	28.15
Export grade, U. S. Motor Specifications bulk	14.00	13 50
63-65 deg. bulk	18.00	17 00
68-72 deg. bulk	20.50	19.50

	Bulk	Barrels	Cases
Standard white 110	6.50	13.50	16.90
Water white 150	7.50	14.50	17.90

The Texas Company

Gasoline, cases		28.15	27.65
Kerosene	**Bulk**	**Barrels**	**Cases**
Standard White	6.50	13.50	16.90
Prime White	7.00	14.00	17.40
Water White	7.50	14.50	17.90

Pacific Export Market

(Cargo lots quotations at seaboard, San Francisco Bay and Los Angeles refinery points, f.o.b. docks.)

	Feb. 2	Jan. 26
Gasoline, U. S. Motor—54°—56°	08½- 09½	08½- 09½
Gasoline—U. S. Motor blends and special cuts	09 - 10½	09 - 10½
Gas Oil, 24°—30°B per bbl.	$1.65	$1.65
Diesel Oil, 27°B-plus per bbl.	$1.65	$1.65
Bunker Oil, 14°—18°B per bbl.	$1.40	$1.40
Fuel Oil, 14°—18°B per bbl.	$1.40	$1.40
Kerosene, W. W. 40°—42° B per gal., 125-150 flash test	05 -06½	05½-06½
Cased Goods		
Gasoline, U. S. Motor	$2.50	$2.50
Kerosene, W. W. 40°—42° B per case, flash test 125-150	$1.55- 1.65	$1.55- 1.65

Gulf Export Market

(Actual Sales Prices)

Gasoline

	Feb. 2	Jan. 26
U. S. Motor, Bulk F.O.B.	12 -.12½	-.11
64-66, Bulk F.O.B.	-.16	-.14
U. S. Motor, Cases (Cargo Lots)	2 60	2.50
64-66, Cases (Cargo Lots)	2 90	2.80

KEROSENE

Water White, bulk	07	-.07¼	-.07
Prime White, bulk	06	-.06¼	-.06
Water White, cases (Cargo Lots)		1.70	1.70
Prime White, cases (Cargo Lots)		1.60	1.60

GAS AND BUNKER OILS

26-28, gravity, bulk	-05	04¾-05
32 plus, bulk	-05	04¾-05
Grade C, Bunker oil (F.O.B.)	-1.70	-1.70

MEXICAN CRUDE AND BUNKER OILS

*Heavy, f o b Tampico, Taxes to be added	1.35	1.35
Mexican Grade C, Bunker oil F.O.B. Tampico Taxes Paid	1.55	1.55
Mexican C, Bunker oil New Orleans	1.60	1.60

Lubricating Oils

SOUTH TEXAS

(Viscosity at 100°F; cold test 0)
(Tanker, F. O. B. Houston)

	Feb. 2	Jan. 26
100 Vis. No. 2 Unfilt. Pale	09	08
150 Vis. No. 2½ Unfilt. Pale	12	12
200 Vis. No. 3 Unfilt. Pale	14½	13
300 Vis. No. 3 Unfilt. Pale	17	16
500 Vis. No. 3½ Unfilt. Pale	19	17
750 Vis. No. 4 Unfilt. Pale	24½	23
200 Vis. No. 5½ Red Oil	13½	16
300 Vis. No. 5½ Red Oil	15½	14
500 Vis. No. 6 Red Oil	17½	16
750 Vis. No. 6 Red Oil	22½	19

*Nominal

Gulf Coastal Lubricant Prices Marked Up

HOUSTON, Feb. 2.—Gulf Coastal Co. lubricant manufacturers were quick to advance their prices because of the Jan. 29 advance in crude oil prices. The crude advance came on top of an already strong lube market. Contract prices of lubricants were advanced 1 cent per gallon automatically on the basis of ⅛ cent per gallon for each 5-cents per barrel advance in cost of raw material. Spot market prices of lubricants advanced similarly.

One Houston manufacturer reports he has sold for export, March delivery, 4000 tons of red oils of various viscosities. Loading prices are to be at the top of the market. One sizeable sale of 500 vis. red oil before the crude price advance was at 16½ cents per gallon.

One of the leading companies, on the other hand, weakened the market for 200 viscosity red oil by offering quantities to jobbers at 9 cents, f. o. b. refinery, in face of quotations of 11½ to 12 cents at other plants. This company generally is not in the spot market for long as its policy is not to sell to the jobbing trade.

Exports inquiries are reported to be more numerous than inquiries from domestic jobbers. Some manufacturers say they are doing better business than is usual for the season.

Paragon Now Rebuilding Destroyed Refinery

TOLEDO, O., Jan. 31.—Paragon Co. has started rebuilding the parts of its refinery which were destroyed by fire Jan. 28 with a loss of approximately $300,000. M. R. Singleton, general manager, said today. The company has sufficient finished oils to operate its own stations and will start operating its stills as soon as pumping equipment can be installed.

The fire which resulted in the destruction of four agitators, 14 tanks, the pump house, machine shop and one tank car, was caused by the boiling over of an agitator which immediately collapsed. The gasoline being treated ignited and flames spread to the other agitators and other property near by. The superintendent, slightly injured, was the only person hurt. This was the second fire in six weeks at the refinery.

Mr. Singleton said all losses were fully covered with insurance.

COUNCIL BLUFFS, IA., Jan. 30.—Monarch Mfg. Co., lube oil and grease manufacturers, moved into larger office quarters in a new building shortly after the first of the year, according to D. A. Searle, of the sales department.

A general sales meeting was held recently, with salesmen from all territories attending. A general sales and advertising school was held, and all the salesmen are looking forward to a prosperous year, Mr. Searle reports.

Crude Oil Prices All Fields

EASTERN FIELDS

	1925	1924			1923			
	Feb. 2	High		Low	High		Low	
Bradford-Allegany	$3.60	Jan.30	$4.50	Aug.21	$2.85	Feb.15	$4.25	Nov.13 $2.60
Other Pennsylvania	3.50	Jan.30	4.00	Aug.5	2.75	Feb.15	4.00	Nov.13 2.35
Cabell	1.95	Mar.10	2.20	Jan.1, Aug.5	1.45	Feb.15	2.76	Nov.13 1.20
Corning	1.95	Mar.10	2.15	Jan.1	1.40	Feb.15	2.30	Nov.14 1.25
Somerset	2.05	Mar.10	2.30	Jan.1	1.40	Feb.15	2.55	Nov.13 1.15
Somerset Light	2.20	Mar.10	2.50	Jan.1	1.55	Feb.15	2.80	Nov.13 1.30
Ragland	1.20	Mar.10	1.10	Jan.1	.85	Feb.15	1.10	July 10 .75

Somerset oil run prior to Oct. 1, 1923, takes price of 6 cents lower than above quotations.

CENTRAL STATES FIELDS

Wooster	$1.95	Mar.8	$2.15	Jan.1, Sept.18	1.40	Feb.19	$2.50	Nov.9 $1.25
Lima	2.08	Mar.8	2.28	Jan.1	1.53	Feb.19	2.58	Nov.9 1.43
Indiana	1.88	Mar.8	2.08	Jan.1	1.33	Feb.19	2.38	Nov.9 1.23
Princeton	1.87	Mar.8	2.07	Jan.1	1.32	Feb.19	2.37	Nov.8 1.22
Illinois	1.87	Mar.8	2.07	Jan.1	1.32	Feb.19	2.37	Nov.8 1.22
Plymouth	1.40	Mar.8	1.45	Jan.1	.70	Feb.19	1.75	Nov.9 .60
Canadian Petrolia	2.48	Mar.8	2.68	Jan.1	1.93	Feb.19	2.98	Nov.9 1.83

MID-CONTINENT AND NORTH TEXAS FIELDS

Below 30	$1.15	Currie	$1.80
30-32.9	1.35	Mexia	1.75
33-35.9	1.55	Powell	1.80
36-38.9	1.70		
39-41.9	1.85		
42 and above	1.95		

Humble's Prices
Moran Field Texas

Below 30	$1.15	Wortham	$1.75
30-32.9	1.35	36 and above	1.70
33-35.9	1.55	Richland	1.80

Magnolia's Price Schedule
North and North-Central Texas, Okla., and Kan.

Below 28	$ .90	Corsicana, light, Powell, Mexia	$1.80
28-30.9	1.15	Corsicana, heavy	.90
31-32.9	1.35	Thrall	1.00
33-35.9	1.55		
36-38.9	1.70		
39-41.9	1.85		
42 and above	1.95		

NORTH LOUISIANA—ARKANSAS FIELDS

Caddo, 38 degrees and above	$1.80	De Soto	1.65
do 35 to 37.9	1.70	Crichton	1.45
do 32 to 34.9	1.60	Bellevue	1.75
do below 32	1.45	Smackover 28 and above	1.45
Homer, 35 and above	1.55	do 27-27.9	1.40
do 33 to 34.9	1.45	do 26-26.9	1.35
do 31 to 32.9	1.35	do 25-25.9	1.25
do below 31	1.20	do below 25	1.15
Haynesville, 33 and above	1.45	Stephens 26 and above	1.35
do below 33	1.35	do below 26	1.15
El Dorado 33 and above	1.45	Cotton Valley	1.25
do below 33	1.35		
Bull Bayou, 38 and above	1.60		
do 35 to 37.9	1.45		
do 32 to 34.9	1.30		

GULF COASTAL FIELDS

	1925	1924			1923			
	Feb. 2	High		Low	High		Low	
Spindletop	$1.75	Apr.1	$2.00	Jan.1*	$1.25	Mar.15	$1.75	Aug.18 $1.00
Goose Creek "A"	1.75	Apr.1	$2.00	Jan.1*	$1.25	Mar.15	1.75	Aug.18 1.00
Goose Creek "B"	1.50	Apr.1	$1.70	Sept.17	$1.05	Mar.15	1.50	Aug.18 1.00
Sour Lake	1.75	Apr.1	$2.00	Jan.1*	$1.25	Mar.15	1.75	Aug.18 1.00
Humble	1.75	Apr.1	$2.00	Jan.1*	$1.25	Mar.15	1.75	Aug.18 1.00
Hull "A"	1.75	Apr.1	$2.00	Jan.1*	$1.25	Mar.15	1.75	Aug.18 1.00
Hull "B"	1.50	Apr.1	$1.70	Jan.1*	$1.00	Mar.15	1.30	Jan.1 .80
West Columbia	1.75	Apr.1	$2.00	Jan.1*	$1.25	Mar.15	1.75	Aug.18 1.00
Edgerly	1.75	Apr.1	$2.00	Jan.1*	$1.25	Mar.15	1.75	Aug.18 1.00
Vinton	1.75	Apr.1	$2.00	Jan.1*	$1.25	Mar.15	1.75	Aug.18 1.00
Jennings	1.75	Apr.1	$2.00	Jan.1*	$1.25	Mar.15	1.75	Aug.18 1.00
Saratoga	1.75	Apr 1	$2.00	Jan.1*	$1.25	Mar.15	1.75	Aug.18 1.00
Orange "A"	1.75	Apr.1	$2.00	Jan.1*	$1.25			
Orange "B"	1.50	Apr 1	$1.70	Jan.1*	$1.00			
Pierce Junction "A"	1.75	Apr.1	$2.00	Jan.1*	$1.25			
Pierce Junction "B"	1.50	Apr.1	$1.70	Jan.1*	$1.00			

*and September 17

WYOMING FIELDS

Elk Basin	$1.65	Mar.10	$1.65	Jan.1	$ .95	Feb.17	$2.10	Nov.9 $ .95
Grass Creek	1.65	Mar.10	1.95	Jan.1	.95	Feb.17	2.10	Nov.9 .95
Big Muddy	1.30	Mar.10	1.50	Jan.1	.45	Feb.17	1.65	Nov.9 .45
Salt Creek	1.30	Mar.10	1.60	Jan.1	.60	Feb.17	1.65	Nov.9 .60
Lance Creek	1.60	Mar.10	1.90	Jan.1	.90	Feb.17	2.10	Nov.9 .80
Rock Creek	1.40	Mar.10	1.70	Jan.1	.60	Feb.17	1.75	Nov.9 .60
Osage	1.60	Mar.10	1.90	Jan.1	.90	Feb.17	2.10	Nov.9 .80
Cat Creek, Mont	1.65	Mar.10	1.95	Jan.1	.95	Feb.17	2.10	Nov.9 .95
Sunburst, Mont	1.12	Mar.10	1.05	Jan.1	.70	Feb.17	1.50	June 6 .70

CALIFORNIA

14-19.9	$1.00	25-25.9	$1.10	30-30.9	$1.23			
20-20.9	1.01	26-26.9	1.13	31-31.9	1.28			
21-21.9	1.02	27-27.9	1.16	32-32.9	1.31			
22-22.9	1.03	28-28.9	1.19	33-33.9	1.34			
23-23.9	1.05	29-29.9	1.22	34-34.9	1.37			
24-24.9	1.07			35 and above	1.40			

ROSECRANS FIELD—EFFECTIVE SEPT. 24, 1924

36-36.9	$1.46
and for each increase of one full degree above 36° gravity, up to and including 41.9° gravity, 6 cents per barrel additional	
42 and above	1.82

British Importations

During the week ended Jan. 5 there were imported into the United Kingdom 64,042,162 imperial gallons of petroleum. Larger receipts were:

Consignee	Imperial Gallons	Product	Port of Origin
At London—			
Shell	1,811,414	Benzine	S. Pedron
Shell	1,855,850	Crude	Curacao
Shell	536,046	Gas Oil	Gothenburg
Shell	1,597,960	Benzine	Balik Pappan
Shell	467,812	Benzine	Balik Pappan
Shell	474,073	Benzine	Singapore
Shell	2,355,510	Benzine	Rangoon
Shell	2,247,025	Benzine	San Pedro
U. Caucasian Oil	217,000	Gasoline	Beaumont
U. Caucasian Oil	802,500	Gasoline	Beaumont
U. Caucasian Oil	282,000	Gasoline	Beaumont
Anglo-Amer.	1,299,520	Gas Oil	Baytown
Anglo-Amer.	4,474,810	Naptha	San Pedro
Anglo-Amer.	133,818	Lubes	Pichmond
Anglo-Mex.	731,340	Gasoline	Tampico
Anglo-Mex.	1,780,272	Kerosene	Tampico
Vacuum Oil	373,333	Lubes	New York
At Liverpool—			
Brit. Mex. Pet.	1,680,000	Fuel Oil	New Orleans
Brit. Mex. Pet.	750,000	Fuel Oil	San Pedro
Lubes & Fuel Oils	659,186	Lubes	Baytown
At Bristol—			
Shell	821,334	Gas Oil	Rotterdam
Shell	885,581	Gas Oil	Baytown
Shell	1,715,373	Benzine	San Pedro
Anglo-Mex.	1,087,362	Gasoline	N. Orleans
Anglo-Amer.	1,919,860	Gasoline	B. Rouge
Anglo-Amer.	2,281,420	Kerosene	B. Rouge
At Hull—			
Anglo-Mex.	1,321,308	Gasoline	Tampico
Anglo-Mex.	765,948	Kerosene	Tampico
At Manchester—			
Anglo-Amer.	826,320	Fuel Oil	Tampico
Anglo-Amer.	991,260	Gasoline	Paulsboro
Lubes & Fuel Oils	523,900	Lubes	Baytown
Anglo-Mex.	1,060,596	Gasoline	N. Orleans
Shell	490,195	Gas Oil	Baytown
At Southampton—			
Anglo-Mex.	109,386	Gasoline	P. Mexico
Anglo-Mex.	870,604	Fuel Oil	Tampico
Anglo-Mex.	873,300	Kerosene	Tampico
Brit.-Mex	1,983,063	Fuel Oil	N. Orleans
At Swansea—			
Natl. Oil Ref.	2,488,615	Crude	Abadan
Natl. Oil Ref.	2,458,405	Crude	Abadan
Natl. Oil Ref.	2,494,445	Crude	Abadan
Natl. Oil Ref.	2,468,210	Crude	Abadan
Natl. Oil Ref.	2,457,345	Crude	Abadan
Natl. Oil Ref.	2,473,410	Crude	Abadan
At Grangemouth—			
Scottish Oils	2,337,750	Crude	Abadan
Scottish Oils	2,065,000	Crude	Abadan
At Belfast—			
Munster,Simms	750,000	Gas Oil	Houston

During the week ended Jan. 12 there were imported 28,386,049 imperial gallons. Larger receipts were:

Consignee	Imperial Gallons	Product	Port of Origin
At London—			
Anglo-Amer.	1,778,190	Kerosene	Kustendje
Midway Oil	1,250,503	Kerosene	Baytown
Brit-Mex. Pet.	2,033,928	Fuel Oil	Tampico
Shell	1,882,304	Crude	Curacao
Natl. Benzole.	1,396,000	Gasoline	San Pedro
At Liverpool—			
Brit-Mex Pet.	1,652,000	Fuel Oil	N. Orleans
Anglo-Mex.	1,416,000	Fuel Oil	Tampico
At Barrow—			
Anglo-Amer.	1,203,720	Gasoline	Paulsboro
Anglo-Amer.	567,750	Kerosene	Paulsboro
At Bristol—			
Anglo-Amer.	232,120	Fuel Oil	Tampico
At Manchester—			
Anglo-Mex.	1,840,800	Fuel Oil	Tampico
At Plymouth—			
Anglo-Amer.	1,094,980	Kerosene	New York
At Southampton—			
Natl. Benzole.	1,298,439	Gasoline	Los Angeles
Brit-Mex Pet.	2,004,499	Fuel Oil	Tampico
Brit-Mex Pet.	1,432,950	Crude	I. of Aruba
At Swansea—			
Natl. Ref.	2,429,255	Crude	Abadan
Natl. Ref.	1,716,935	Crude	Abadan
Nat. Ref.	2,464,500	Crude	Abadan

Refiners', Compounders' Supplies

Following are the average market prices for the week on materials used by refiners and Compounders f. o. b. shipping point as effective this date.

Refiners' Supplies

	Feb. 2	Jan. 26
Soda Ash light 58% bags cwt.	-$1.38	$-1.38
Silicate of Soda 60 deg. drums.....cwt.	-1.70	-1.70
Sal Soda wks.....cwt.	1.10-1.25	1.10- 1.25
Caustic Soda 76% solid.cwt.	-3.10	- 3.10
Chloride of Lime.....cwt. works.....	1.90-2.10	1.90- 2.10
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point.....per ton	9.50-11.00	9.50-11.00

Compounders' Supplies (Open Market)

Vegetable Oils—		
Linseed carloads spot....gal.	-1.20	-1.17
Jan.-Feb.	-1 20	-1.17
March-April	-1.21	-1 18
May-June	-1 22	-1 19
Tanks, spot	-1.14	-1.11
Less carload spot.....gal.	-1.23	-1 20
Less than 5 bbls. spot.....	-1.26	-1.23
Boiled, tank spot.....	-1.16	-1.13
Boiled, carloads spot.....gal.	-1.22	-1.19
*Soya Bean spot, tanks...lb.	- .12	- .12
Animal Oils—		
English Degras.....lb.	-.04¾	-.04¾
Domestic Degras, bbls., carloads.....lb.	-.04¼	-.04¼
*Horse.....lb.	-.10½	-.10½
Oleic Acid—		
Dist.....lb.	-.11⅜	-.11⅜
Saponified.....lb.	-.11⅜	-.11⅜
Lard Oils—		
Prime Winter Strained.. 1 to 1½ffa.40‡45c.t.lb.	.19	.18¾
Extra Winter Strained.. 2 to 4½ffa.40/45c.t.lb.	.16¾	.18¼
Extra .... 4 to 5 ffa.40/45c.t.lb.	.15½	.16¼
Extra No. 1. 7 to 10 ffa.40/50c.t.lb.	.14½	.14¾
No. 1.....15 to 18 ffa.40/45c.t.lb.	.13¾	.14¼
No. 2.....22 to 25 ffa.40/45c.t.lb.	.13¼	.13¾
Prime Edible Tallow under 1¾ ffa. 40/45c.t.N.Y..... lb.	-.12¾	-.12¾
Tallow acidless.....lb.	-.13½	-.13½
Lard Stearine.....lb.	-.19	-.19
Oleo Stearine.....lb.	-.10¾	-.10¾
Neatsfoot Oil—		
Pure.....bbls.-lb.	.15½	.15¼
Extra.....do lb.	.14¼	.14½
No. 1.....do lb.	.13¾	.14
Cold pressed.....lb.	.18½	.18½
Fish Oils—		
Menhaden Oil Light pressed.....gal.	-.70	.70-.72
White.....gal.	-.75	-.75
Yellow bleached.....gal.	-.73	-.73
*Herring tank cars coast.....gal.	-.40	-.40
Whale, extra winter bleached.....gal.	-.80	-.80
Seal.....gal.	Nominal	
Naval Stores—		
Turpentine, N. Y.....gal.	.94	.93
Turpentine†.....gal.	.88	.88
Rosin B. N. Y.....Bbl.	8.40	8 30
Rosin F. N. Y.....Bbl.	8.45	8 30
Rosin B†.....Bbl.	7.15	6 95
Rosin F†.....Bbl.	7.25	7.10
Rosin Oil 1st run.....gal.	.48	.45
Rosin Oil 2nd run.....gal.	.51	.47
Pine Tar—		
Kiln Burnt.....Bbl.	13.50	12.00
Retort.....Bbl.	13.50	11.50

†Savannah, Ga. market.
*Nominal.

Cargoes Clearing From N. Y.

Date	Destination	Product	Quantity
Jan. 16	Canary Islands	Ref. Pet.	1,000 cases
Jan. 16	Canary Islands	Naptha	1,600 cases
Jan. 16	Canary Islands	Ref. Pet.	1,350 cases
Jan. 16	Canary Islands	Naptha	2,150 cases
Jan. 16	Dakar (Afr.)	Ref. Pet.	18,500 cases
Jan. 16	Dakar	Naptha	1,800 cases
Jan. 16	Accra (Afr.)	Ref. Pet.	2,750 cases
Jan. 16	Accra	Naptha	6,700 cases
Jan. 16	North Afr. Ports	Ref. Pet.	35,360 cases
Jan. 16	North Afr. Ports	Naptha	15,280 cases
Jan. 14	Nassau, (B.I.)	Ref. Pet.	800 cases
Jan. 16	Glasgow	Lubes	953 bbls.
Jan. 19	Algiers	Lubes	550 bbls.

Caustic Soda is Firm; Sulfuric Steady

NEW YORK, Feb. 2.—Following is a review of the markets for oils and supplies used in compounding and refining.

Vegetable Oils

Linseed oil is up 3 cents per gallon reflecting the advance in flaxseed. Demand more active. Stocks small. Consumers anxious to cover spring requirements. Some crushers won't quote in more than 10-barrel lots. Soya bean oil quiet at 11¼ cents, tanks coast.

Animal Oils

Lard oil steady. Demand slightly better. Neatsfoot oil making time as buyers hold off. More interest in domestic degras. Horse oil moving in a slightly larger way. Oleo stearine demand picking up.

Fish Oils

Crude Menhaden, undertone easier but prices steady at 55 cents. gallon, tanks, factory. Light pressed, demand slightly better at 70 cents, barrels, New York. Whale oil dull.

Soda Ash

Demand slightly more active. Buyers purchasing more freely and first hands fully satisfied with market. Prices unchanged.

Caustic Soda

Heavy contract shipments going on keep prices firm. Movement larger than usual for this time of year. Prices firm —unchanged.

Sulfuric Acid

Demand steady, prices unchanged. Better inquiry for future deliveries. Stocks moderate.

Bleaching Powder

More interest in contracts but spot demand is less active. Prices steady. Little available for immediate delivery.

Naval Stores

Steady to firm. Turpentine advancing under better demand. Rosins steady. Distributors look for higher prices owing to small stocks. Rosin oil quiet. Tar and pitch moving more freely.

Pennzoil Buys Sound Oil Corp.

BUFFALO, N. Y., Jan. 29.—The Pennzoil Co. has purchased the business of the Sound Oil Corp. at New Rochelle, N. Y., which will be operated as a direct branch of the Pennzoil's New York state division. The company has already built up a nice business throughout Westchester county and along Long Island Sound, according to A. S. Matthews.

OIL STOCKS AND FINANCES

Independent Has Better Year in 1924

NEW YORK, Jan. 31.—Net income of the Independent Oil & Gas Co. in 1924 was $654,016 after all charges including depreciation and depletion, equal to $1.45 a share on the 450,000 shares of no par common stock outstanding. Income in 1923 was 809,797 before depreciation and depletion. Net operating income last year was $1,753,673 as against $996,256 the previous year.

This report is the first for 1924 of any oil company whose stock is listed on the New York Stock Exchange and shows improvement over 1924 in spite of the depressed conditions in the industry last year. E. H. Moore, president of the Independent, in a letter to stockholders said the company had bought less acreage last year than in the preceding year but it had spent more money because the present policy of the company is to buy in proven territory.

The balance sheet as of Dec. 31 shows only $250,000 indebtedness other than current liabilities, this amount being a bank loan. Since Jan. 1 the amounts due for current purchases have been liquidated more than half, Mr. Moore said.

The income accounts for 1924 and 1923 compare:

	1924	1923
Net sales	$2,251,849	$1,356,302
Cost of prod. & sale	283,487	197,952
Gross profit	$1,968,362	$1,158,350
Oper., gen. and admin. exp.	214,689	162,094
Net oper. income	$1,753,673	$996,256
Other income	590,893	83,418
Total income	$2,344,566	$1,079,674
Deductions	529,914	269,877
Balance	$1,814,652	$809,797
Res. for depr. & depl.	1,160,636	.....
Net income	$654,016	$809,797
Dividends	447,425	456,198
Surplus	$206,591	*$353,599

*Includes cost of dry holes, expired leases, etc.

Consolidated balance sheets as of Dec. 31, 1924 and 1923, compare:

Assets

	1924	1923
Cash	$125,531	$50,266
Notes, acc'ts rec., less reserve	296,350	425,557
Inventories	309,156	84,556
Investments	6,875	.....
Acc'ts rec. future prob. prod. (cont.)	.....	58,051
Leaseh'ld costs fut. prob. prod. (cont.)	.....	41,400
Real est., leases, etc.	2,498,045	2,303,603
Apprec. result. from app. of prod. leases	3,639,283	2,697,329
Deferred charges	10,725	239,660
Total	$7,385,967	$5,900,427

Liabilities

Notes payable	$250,000	.....
Accounts payable	608,230	278,003
Accrued payrolls, taxes, etc.	33,065	27,000
Conting. acc'ts pay.	.....	129,207
Capital stock	4,284,861	4,298,861
Surplus	2,209,810	1,529,975
Total	$7,385,967	$5,900,427

Mexican Seaboard Oil Passes Dividend

NEW YORK, Jan. 31.—Directors of Mexican Seaboard Oil Co. have passed the dividend which ordinarily would be paid Feb. 15. Dividends at the rate of 50 cents a quarter have been paid in each of the last three quarters. Previous to May 15, 1924, there was no payment since June 1, 1923. From April to August, inclusive, 1922, the company paid 50 cents per month.

The present suspension was the result of a desire to conserve funds to continue its development and to bring its production back to the level reached last year. During the fall the production fell off considerably. The company issued this statement:

"As there are 18 wells being drilled in the company's Cacalilao field, and as the company's geologists are convinced that with the intensification of this drilling the company's production will shortly be increased, it was decided, in order to effectuate the increased drilling program and conserve the company's cash position, to pass the dividend which ordinarily would have been declared at this meeting.

"The Treasurer submitted a statement of the company's quick assets as of Jan. 1, 1925, which showed a total of approximately $3,610,500, compared with $3,512,069 as of Jan. 1, 1924.

"The operating report showed a decrease in production in the company's Cacalilao field during the last quarter, and especially during the past few days, which, in the opinion of the company's geologist, is temporary.

Employes Buy Texas at $35

NEW YORK, Jan. 31.—The Texas Co. has announced that it would allot to employes between 70,000 and 80,000 shares of stock this year at $35 a share. Last year the company sold the stock at $25 a share, or par. In the past when the company has offered shareholders stock, it has set aside a certain amount for the employes. All of this stock has been exhausted and that which will be sold the employes this year has been purchased in the market.

Sinclair Purchasing Co. Refunds Debts

NEW YORK, Jan. 31.—Sinclair Crude Oil Purchasing Co., owned half by Standard Oil Co. of Indiana and half by Sinclair Consolidated Oil Corp., has issued $50,000,000 3-year 6 per cent gold notes dated Feb. 1, 1925. Price was 99¼ and interest to yield more than 6¼ per cent. Underwriting bankers were: National City Co., New York; Blair & Co., New York, and First Trust & Savings bank, Chicago.

The company announced that it will retire the $20,000,000 outstanding 3-year 6 per cent gold notes due Feb. 15, 1926, at a premium of 1 per cent above the principal amount of the notes, and the $30,000,000 of 3-year 5½ per cent notes due April 15, 1925, also at a premium of 1 per cent above the face value.

Notes offered for retirement are to be presented to the National City Bank or Chase National Bank of New York or the First Trust & Savings bank, Chicago. These notes may also be applied in payment of confirmed sales of the new issue of 6 per cent notes. The new issue was quickly over-subscribed, the National City Co. announced.

Stock Split Report Denied

PITTSBURGH, Jan. 29.—Denial has been made here that the South Penn Oil Co. contemplated splitting its stock, selling more stock and acquiring the outstanding minority stock in the Penn Mex Fuel Co. According to a report in New York, directors contemplated reducing the par value of the stock to $25 a share and issuing four shares of new stock for each $100 share now outstanding.

Put Diesels in Tankers

NEW YORK, Jan. 29.—Standard Oil Co. of New Jersey will have Diesel engines installed in two of its tankers the James A. Moffet, Jr., and the E. T. Bedford, at an approximate cost of $1,300,000. One contract was let to the Hoover, Owens, Rentschler Co. Hamilton, O., and the other to the Busch-Sulzer Bros., St. Louis.

Cleveland Stock Market

	Par	Bid	Asked	High	Low
		January 30			
Canfield Oil Co., pfd.	$100	.....	100	100	95
Fred G. Clark Co.	10	4	.....	4	2
National Refin. Co.	25	38	45	39	33¾
do pfd	100	126¾	.....	127¼	116
Paragon Refin. Co.	25	5	6½	6	5¼
do pfd	100	44	55	75	40

x—Ex dividend

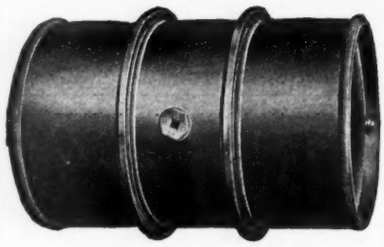
Transactions In Oil Shares on New York Stock Exchange

1923 High	1923 Low	1924 High	1924 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Jan. 31 Sales	First	High	Low	Last	Ch'ge
.....	.....	46¾	25	(sh) 200.000	N.P.	American Republics	.....	.....	.....	.....	.....	.....	.....	.....
29½	24⅞	34⅜	27½	$ 56,000,000	$25	Associated Oil	87½cQ	Jan. 26, 25	75,700	36½	39¾	36¼	39	+3¼
160	98¾	140½	78½	50,000,000	100	Atlantic Refining	.....	June 16, 24	18,400	109½	116⅞	107	115¾	+6
120	115	118	108	20,000,000	100	do pfd	6¾Q	Nov. 1, 24	300	113⅜	114	113⅜	114	+ ⅜
35	9¾	21¾	14	13,000,000	25	Barnsdall Corp. A	.....	Apr. 30, 21	64,400	24¼	26	23½	25¾	+1½
22	6	16¼	10	3,713,275	25	do B	.....	Apr. 30, 21	3,700	20½	21¾	20	21¾	+1
9½	1¼	4¼	1	(sh) 150.000	N.P.	Caddo Central O. & R.	.....	.....	1,600	1¾	2	1¾	1¾	— ⅛
29½	17⅜	29¾	19½	$ 17,377,000	$25	California Petroleum	43¾cQ	Dec 1, 24	83,900	27⅜	29	27⅜	28⅜	+1⅛
110½	90⅜	107	92½	11,955,100	100	do pfd	6¾Q	Jan. 2, 25	3,000	105	107¾	104	106¼	+1⅜
62¼	22¾	40¼	22¾	(sh) 1,357,800	N.P.	Cosden & Co.	.....	Aug. 1, 23	81,500	31⅜	35	30⅞	35	+3¾
90¼	83¼	95	80	$ 6,998,000	$100	do pfd	6¾Q	Dec. 1, 24	400	87½	87¾	87½	87¾	+ ¾
54	25	59¾	31¾	19,831,000	100	General Asphalt Co.	.....	.....	32,900	57½	61¾	57	60¾	+2½
85	60	96	71½	7,416,000	100	do pfd	6¼Q	Dec. 1, 24	1,600	99½	100	97	100	+ ½
.....	.....	45	38¾	28,856,050	25	General Petroleum	50cQ	Dec. 15, 24	83,000	44¼	47⅜	43½	47⅜	+3⅝
78	40¾	82½	61	25,000,000	100	Houston Oil Co.	.....	.....	30,800	81½	85	79¾	83¾	+2¼
11¾	8¾	13¾	5¾	(sh) 450.000	N.P.	Independent Oil & Gas	25cQ	Dec. 31, 24	126,900	16¾	23¾	16¾	22¼	+5⅛
8¾	8½	7½	8¾	7,830,450	10	Indian Refining Co.	.....	Dec. 15, 20	8,500	7⅛	7¾	6⅞	7¾	+ ⅜
49½	49½	75	60	2,296,400	100	do pfd	.....	Dec. 15, 21	.....	.....	.....	.....	.....	.....
19¼	7¾	16¾	10½	1,094,236	N.P.	Invincible Oil Corp.	.....	.....	.....	.....	.....	.....	.....	.....
3½	⅜	1	⅜	$ 1,697,610	$10	Kansas & Gulf Corp	.....	.....	15,200	⅝	1⅜	⅝	1	+ ⅜
.....	.....	.....	.....	1,098,148	N.P.	Louisiana Oil Refining	.....	.....	65,800	20½	21⅜	19¾	21½	+ ⅜
28¾	16	37½	24¾	(sh) 268 850	N.P.	Maracaibo Oil	.....	.....	63,000	29½	35½	28⅝	34⅜	+5⅛
58¾	17⅜	42	29	(sh) 1,549,190	N.P.	Marland Oil Co.	.....	July 1, 23	169,100	44¾	46	43½	45⅝	+1¼
198	182	190	190	$ 45,942,800	$100	Mexican Petroleum Co.	8Q	Jan. 20, 25	.....	.....	.....	.....	.....	.....
108¾	100¼	.....	.....	12,000,000	$100	do pfd	8Q	Jan. 20, 25	.....	.....	.....	.....	.....	.....
23¾	5¾	23¾	14¾	(sh) 945 959	N.P	Mexican Seaboard Oil	.....	Nov 15, 24	17,500	17	17¾	16½	17	+ ¼
12¼	3½	6¾	1	$ 29,799,450	$10	Middle States Oil Corp.	.....	July 1, 23	8,100	1¾	1¾	1½	1½	0
82¼	31¼	58¾	45	(sh) 3,500,000	N P.	Pacific Oil Co.	8S.A.	Jan. 20, 25	303,200	60¾	65¼	59¾	64½	+4¼
98½	53	85	42¾	$ 48,292,450	$50	Pan American P. & T.	8Q	Jan. 20, 25	73,400	65¾	71¾	65¾	71¾	+5¼
66	50½	61¾	41¼	83,221,500	50	do Class B	8Q	Jan. 20, 25	341,000	65¼	71¾	65¼	71¾	+6¾
6¼	1¾	4	1¾	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	8,000	5	5¾	4¾	5	0
68	27½	42½	29¾	$ 3,855,500	$100	do pfd	.....	July 2, 23	300	50	50¾	50	50	+7
69¾	19¾	42¾	28½	(sh) 1,849,848	N P.	Phillips Petroleum	50cQ	Jan. 2, 25	194,900	.....	46	41⅝	46	+3¼
6	1¾	4½	1½	$ 29,622,925	$25	Pierce Oil Corp.	.....	.....	10,800	2½	2¾	2¼	2¾	0
44½	16	39¾	20	15,000,000	100	do pfd	.....	Feb. 1, 22	2,900	33¾	34	32½	33½	+ ¾
.....	.....	5¾	4¾	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	58,700	6¾	6¾	6¾	6¾	+ ⅜
58¼	17	45½	22¾	$11,467,850	50	Producers & Refiners	.....	Sept. 15, 23	19,400	30⅞	32¾	29¾	32⅛	+1⅜
49½	36	47½	22	2,843,350	50	do pfd	87½cQ	Nov. 3, 24	700	45¾	47¾	45¾	47	+1½
82	16¾	30	20	71,316,375	25	Pure Oil Co.	37½cQ	Dec. 1, 24	16,000	30¾	32¾	30¾	32¾	+2
100	82½	103¾	92	13,000,000	100	do 8% pfd.	8Q	Jan. 2, 25	300	104½	106¾	104½	106	+1
55¾	40½	59½	40¾	(sh) 727,550	18.40	Royal Dutch, N. Y. shares	83.18½	Aug. 12, 24	85,600	53	57½	52¾	56¾	+2¾
41¼	22¾	41½	33	(sh) 141,395	£2	Shell Transport & T.	95c	Jan. 24, 25	9,200	42¾	45¾	42¾	45	+2¼
19¾	12¾	22	15¾	(sh) 10.000,000	N.P.	Shell Union Oil Corp.	25cQ	Dec. 31, 24	120,200	26½	27¾	25¾	27	+1¾
98	89½	99	91½	$ 20,000,000	$100	do pfd	8½Q	Nov. 15 24	700	99¾	100¾	99¾	100¾	+ ⅜
16	6¾	20	10¾	7,204,710	10	Simms Petroleum Co.	50Q	Jan. 2, 25	62,600	23¾	23¾	20¾	23½	— ¼
38¼	16	27¾	15	(sh) 4,480,957	N.P.	Sinclair Consolidated	.....	May 31, 24	250,800	19¾	24¼	19¾	24¼	+4½
99¼	80¾	88½	75	$ 18,914,900	$100	do pfd	8Q	Nov. 15, 24	3,200	89¾	93	89	93	+4¼
85	12¾	29	17¾	20,579,090	25	Skelly Oil Co.	.....	.....	126,300	26¾	29¾	26½	29¾	+3¼
64½	47¼	68½	58½	234,317,800	25	S. O. California	50cQ	Dec. 15, 24	123,600	64½	66¾	63¾	66¾	+1¾
44½	30¾	42¾	33	506 951,775	25	S. O. New Jersey	25cQ	Dec. 15, 24	237,000	43	47	43	47	+4
118½	114¾	119¾	115¾	199,972,900	100	do pfd.	6¾Q	Dec. 15, 24	4,200	118	118	116¾	116¾	— ¾
6¾	2	8¾	2¾	(sh) 1,087,228	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	19,500	5½	5¾	4¾	5¾	+ ¾
82¾	34¾	45¾	37¾	$164,450,000	$25	The Texas Co.	75cQ	Dec. 31, 24	76,500	45¾	48¾	45¾	48¾	+3⅛
24¾	5½	15¼	8	8,380,340	10	Texas Pacific Coal & Oil.	.....	June 30, 23	83,600	16¾	17¾	15⅞	17¾	+1⅜
144	94	151	118½	50,004,000	100	Tide Water Oil Co.	8Q	Dec. 31, 24	8,000	138¾	148¾	137	148¾	+12½
14½	1¾	6¼	3¾	(sh) 2,957,529	N.P.	Transcontinental Oil Co.	.....	.....	45,800	5	5¾	4¾	5½	+ ⅜
.....	.....	89	35	$ 40,480,800	$25	Union Oil of California	45cQ	Oct. 28, 24	1,200	124¾	127¾	121	121	+2½
99¾	81	129	94	$ 18,040,000	$100	Union Tank Car Co.	8¼W	Dec 1, 24	300	116	116	115¾	116	+ ¾
114	100	116¾	106¼	12,000,000	100	do pfd.	8¼Q	Dec. 1, 24	81,100	39¾	42¾	38¾	42¾	+3¾
30¾	20	29¾	23¾	(sh) 460,000	N.P	White Eagle Oil & Ref	50cQ	Jan. 20, 25	26,400	29½	31½	29	31¾	+1¾

*New High †New Low xEx-Dividend Total Sales 3,350,700

Standard Oil Stock Traded In New York Curb Market

1923 High	1923 Low	1924 High	1924 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Jan. 30 Sales	First	High	Low	Last	Ch'ge
19¾	13½	19¾	14¾	£3,000,000	£1	Anglo American	55cS.A.	May, 15, 24	22,400	19¾	20¾	19	19¾	+ ¾
7⅛	2¼	4⅞	2¼	(sh) 500.000	N.P.	Atlantic Lobos	.....	.....	3,500	3¼	3¾	3¼	3½	+ ¼
150	108	265	155	$ 1,000,000	$100	Borne-Scrymser	84S.A.	Oct. 15, 24	130	230	230	225	227	—3
94½	69	85½	51	10,000,000	50	Buckeye Pipe Line	8Q	Dec. 15, 24	1,400	70	70	66	69	—1
.....	.....	52	47½	3,000,000	25	Chesebrough Mfg. Co.	62½cQ	Dec. 29, 24	300	52	52¾	51½	52¾	+ ½
118	110	115	112½	1,000,000	100	do pfd.	8¾Q	Dec. 29, 24	10	114	114	114	114	— ½
50	32¾	54¾	39¾	10,000,000	25	Continental Oil	50cQ	Dec. 15, 24	39,500	28¾	30	28	30	+1¾
47½	15	20	11¾	1,500,000	25	Crescent Pipe Line	.....	Sept. 15, 23	900	14¾	15	14½	14¾	+ ¼
168	85	149	110¾	3,000,000	100	Cumberland Pipe Line	8Q	Dec. 15, 24	380	143	145	142	145	+5
117	87	105	77	5,000,000	100	Eureka Pipe Line	8Q	Oct. 31, 24	130	93	96	93	96	+3
78	55	69¾	52	16,000,000	100	Galena Signal Oil	8Q	Dec. 31, 24	700	59	60¾	59	60¾	+2¾
105½	104	106	100½	4,000,000	100	do new pfd	8Q	Dec. 31, 24	10	102	102	102	102	0
116	108	116	105½	2,000,000	100	do old pfd	8Q	Dec. 31, 24	.....	.....	.....	.....	.....	.....
41¼	28	43¾	30	43,750,000	25	Humble Oil & Ref.	30cQ	Jan. 1, 25	18,700	43¾	45¾	43½	45¼	+1¾
171	115	161	120	20,000,000	100	Illinois Pipe Line	36S.A.	Dec. 30, 24	240	154	154½	142	142	—11
125	92	119	98½	39,222,750	25	Imperial Oil Coupons	75cQ	Dec. 1, 24	6,950	124½	132½	122½	131½	+7¼
105	78	100	66	5,000,000	50	Indiana Pipe Line	8Q	Nov. 15, 24	640	82	84	80½	83	0
24¾	13¾	24	16¾	(sh) 7,118,138	N.P.	International Petroleum	25c	Nov 29, 24	86,300	24½	25½	24½	25½	+1
168	125	162	122	$188,000,000	100	Magnolia Petroleum	8Q	Jan. 5, 25	3,760	145	158	145	157	+13
29	19½	25¾	20¾	6,362,500	12½	National Transit	50cQ	Dec. 15, 24	4,100	24	25½	24	25¾	+1½
138	70	97	54½	5,000,000	100	New York Transit	50cQ	Jan. 15, 25	170	75	77	75	75	+3
109½	90	107½	72	4,000,000	100	Northern Pipe Line	8S.A.	Jan. 1, 25	300	85	87	85	86	0
85¾	48¾	79½	55	60,000,000	25	Ohio Oil Co.	50cQ	Dec. 31, 24	9,100	72½	74¾	72½	73¾	+1⅜
45¾	10¾	48	27	10,000,000	25	Penn.-Mex. Fuel	.....	.....	2,600	38½	39½	37	37¾	— ⅜
200	152	269	193	60,000,000	100	Prairie Oil & Gas	8Q	Jan. 31, 25	6,860	244	256	243	255	+10½
136	98	111	100	81,000,000	100	Prairie Pipe Line	8Q	Jan. 31, 25	6,515	124½	126	119	120	—4½
212½	161	230	175	4,000,000	100	Solar Refining Co.	35S.A.	Dec. 20, 24	1,020	218	229	218	228	+10
116	87	100	80¾	10,000,000	100	Southern Pipe Line Co.	8Q	Dec. 1, 24	760	100½	103	99½	100	0
196	100	171	117	20,000,000	100	South Penn Oil Co.	.....	Sept. 30, 22	6,975	190	197	185	190	+1
88½	66½	89	69	3,500,000	100	Southwest Pa. Pipe Lines	8Q	Dec. 31, 24	10	83½	83½	83½	83½	+ ¾
69½	49¼	68¾	54½	221,706,468	25	S. O. Indiana	62½cQ	Dec. 15, 24	127,900	65¾	68¾	65¾	68¾	+2¾
57½	36¼	50¾	32¾	8,000,000	25	S. O. Kansas	.....	June 16, 24	11,200	40	44¾	39¾	44	+4½
133	80	120	101	16,784,047	25	S. O. Kentucky	8Q	Dec. 31, 24	9,100	119¾	124½	118¾	123¾	+4¾
285	186	262	198	3,000,000	100	S. O. Nebraska	35S.A.	Dec 20, 24	1,250	257	268	253	268	+13
485¼	353¼	553¼	373¼	225,324,650	25	S. O. New York	35cQ	Dec. 15, 24	45,600	47	48¾	47	48	+1¾
320	270	377¾	275	14,000,000	100	S. O. Ohio	8½Q	Jan. 1, 25	380	355	366	355	364	+9
118	116	125½	118	7,000,000	100	do pfd.	8¼Q	Dec. 1, 24	.....	.....	.....	.....	.....	.....
39	21	31	22	1,722,931	100	Swan & Finch	.....	Nov. 1, 19	810	27	27	25¾	25½	—1½
85¾	35¾	83¾	56½	61,523,075	25	Vacuum Oil Co.	50cQ	Dec. 20, 24	40,500	81½	89¾	81½	89¾	+7¾
28	19	30	25½	100.000	10	Washington Oil Co.	.....	Jan. 31, 22	50	30	30	30	30	0



Anchor Steel Barrels
55-110-30 U. S. Gals.
Black—Hot Galv.—Tinned

Meurer Steel Barrel Co., Inc.
25 W. 43d St. New York

Sales Representatives:
Baltimore; R. S. Mueller, Garrett Bldg.
Boston, Moore & Kling, 233 Purchase St.
Pittsburgh; Thos. R. Heyward Co., 47 Terminal Way
San Francisco; Du Val-Kirk Co., Santa Marina Bldg.
Dallas, The Dent Co., Insurance Bldg.
Houston; The Dent Co., 1018 Leeland Ave.

Columbia Steel Shippers
10-15-20-30-35-40-50-55-60 Gals.
Also with 9" and 15" Friction openings

SERVICE IN
OIL SECURITIES

We are prepared to furnish information regarding Standard Oil and other oil stocks and to give most efficient service to orders in oil securities.

CARL H. PFORZHEIMER & CO.
Specialists in Standard Oil and Miscellaneous oil securities
25 Broad St. New York

New York Curb Bonds

Week Ended Jan. 31

	High	Low	Last	Ch'ge
Anglo-Amer 7½s	100½	100½	100½	— ⅛
Cities Service 7s B	165¼	163	165¼	+10¼
do 7s C	120½	116½	120½	+5⅛
do 7s D	102¾	100½	102½	+3
Galena S O 7s	105	105	105	— ¼
Gen. Pet. 6s	101	100¾	101	0
Gulf Oil 5s	99⅝	98⅞	99	+ ⅜
Pennok Oil 6s	97	97	97	— ½
Phillips Petr. 7½ w w	104	103¾	104	0
Pure Oil 6½s	100¼	99⅛	100	— ⅜
S. O. N. Y. 6½s	107⅛	107⅝	107⅛	+ ⅛
Sun Oil 5½	97	96½	96¾	— ¼
Tidal Osage 7s	104	104	104	0
Union Oil Calif. '26	102	101	101	—1
Union Oil Calif. 5s w.i.	96⅛	96	96⅛	0
Vacuum Oil 7s	107⅝	106⅞	107	+ ⅜

New York Bonds

Week Ended Jan. 31

	High	Low	Last	Ch'ge
Atlantic Refg. debs 5	99	98¾	98½	+ ¼
Barnsdall Corp 8s	105	104¼	104¼	— ¾
Calif Pet sf 6½	103	101	103	+1¾
Empire G. & F. 7½s	101¾	99¾	100¾	—1¼
Humble O.& R. 5½s	101	100½	100⅞	+ ⅜
Marland 8s Ser A	106¼	106	106	0
do 7½ ser B	105	105	105	— ⅛
Pan-Am. P & T Co 6s	110	108	109⅞	+3
do 7s	105½	105	105½	+ ⅜
Pierce Oil debs 8s	104	103½	103½	— ½
Prod. & Refg 8s	110¼	110	110	— ⅜
Sinclair Con. col 7s	95¼	91⅞	95⅛	+4
do 6½s	90½	86½	90⅛	+3¼
Sinclair Crude 6s	101	101	101	0
do 5½s	100½	100½	100½	0
Sinclair P L sf 5s	84½	83⅞	84½	+ ⅜
Skelly Oil 6½s	116¾	111	116½	+6
Tidewater Oil 6½s	103½	103	103¼	— ¼
Union Oil of Calif.6s	103½	103	103	— ¼
Union Tank Car 7s	104¾	103¾	103¾	— ½

New York Curb Market

1923 High	1923 Low	1924 High	1924 Low	Par Value	Stocks	Transactions Week Ended Jan. 30 Sales	First	High	Low	Last	Ch'ge
10	4¼	7	4	10	Ark. Nat. Gas	8,000	6⅝	7¾	6½	7¾	+1⅛
1½	.65	1⅛	.75	1	Boston & Wyo.	.....	.....	.....	.....	.....	.....
7⅛	3⅛	6⅛	2¾	25c	Carib. Synd	2,700	3⅞	4	3⅞	4	+ ⅛
195	128	190	132	100	Cities Service	6,020	188	193	182	193	+11
70	64¼	82⅞	67¾	100	do pfd.	3,500	80¾	81¾	80¾	81¾	+1
6¾	5⅜	7¾	6⅛	10	do pfd. B	200	7½	7½	7¾	7½	0
19½	12¾	19	15¾	10	do Bkrs. Sh	5,700	18½	19¼	18	19	+1
7⅛	1½	10⅛	2⅛	N.P.	Creole Synd	25,700	9⅜	10⅛	8¾	10	+ ⅝
18½	5	8	3	N.P.	Derby O. & R	1,200	5¼	5½	5	5½	+ ¼
49½	22	34¾	17½	N.P.	do pfd	100	26	26	26	26	+ ½
1	.10	.60	.12	5	Federal Oil	2,000	25	25	25	25	+5
2¾	.23	.60	.15	10	Glenrock Oil	2,000	20	24	20	24	+4
68¼	45¾	67⅞	50¾	25	Gulf Oil Corp	24,100	68	70¼	66⅛	69½	+1½
9⅛	1	2¾	.37	N.P.	Gulf State O.& R.	.....	.....	.....	.....	.....	.....
4	1⅜	7	1¼	N.P.	Kirby Petroleum	14,200	3⅞	3⅞	2¾	3	— ⅛
.....	.....	6¾	2⅞	N.P.	Lago Petroleum	30,500	5½	5⅞	5⅜	5⅜	— ⅛
5⅜	1½	4⅞	1⅝	N.P.	Marland of Mexico	2,800	2⅜	4	2¼	4	+1⅛
20¼	12⅞	20¾	16	10	Mountain Prod	20,400	20⅜	20⅜	19⅜	20	— ⅛
15¼	12⅜	.....	.....	5	Mutual Oil Co	.....	.....	.....	.....	.....	.....
15½	8⅛	14	9½	5	do cfts	129,800	14	14⅝	13⅞	14½	+ ⅜
6⅛	3½	6¼	3⅝	5	New Bradford	1,000	4¾	4¾	4½	4½	— ¼
52	15⅛	44	18½	10	New England Fuel	500	.....	21⅞	20	20	0
21¾	5	14	8⅛	25	New York Oil	200	9	9¼	9	9	+ ¼
1	.45	.80	.50	10	Omar O. & G	.....	.....	.....	.....	.....	.....
13	¾	3½	.90	N P.	Peer Oil Corp	9,100	1⅜	1⅝	1¼	1½	+ ⅛
14¾	9¼	17¾	12¼	10	Pennok Oil	5,500	24	25	23¾	23¾	+1½
.....	.....	57¾	53¾	25	Red Bank Oil	1,600	26½	30	26	27	—1
6⅞	2	5⅜	3⅛	N.P.	Ryan Consolidated	16,600	4¾	6½	4⅝	6¼	+1½
14	6¼	10½	6	10	Salt Creek Cons	1,200	7¾	7½	7¼	7½	+ ⅛
25¼	15¾	27½	19⅝	10	Salt Creek Prod	9,100	25¾	25¾	25⅛	25½	— ¼
4⅞	.75	2½	.80	5	Sapulpa Refining	.....	.....	.....	.....	.....	.....
4	.65	1½	.30	5	Seaboard O. & G	.....	.....	.....	.....	.....	.....
13½	6	16	8	10	Tidal Osage	200	10½	10½	10½	10½	0
.....	.....	154	130¼	100	Union of California	.....	.....	.....	.....	.....	.....
10⅞	4	8⅜	4⅝	5	Wilcox O. & G	60,100	6¼	7¼	6⅛	7¾	+1⅜
.....	.....	13⅜	5	N.P.	Woodley Petroleum	1,900	5¾	6¼	5⅝	6	+ ⅛

Pittsburgh Stock Exchange

1923 High	1923 Low	1924 High	1924 Low	Par Value	Stocks	Transactions Week Ended Jan. 30 Sales	First	High	Low	Last	Ch'ge
10	4¼	7	4	10	Ark Nat. Gas	19,343	6½	*8	6¾	8	+1⅜
83⅛	83	40½	35⅜	N.P.	Columbia Gas	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	$100	Duquesne Light pfd.	403	105¾	106	105¾	106	+ ¼
.....	.....	30	30	25	Fayette County Gas.	.....	.....	.....	.....	.....	.....
27	22¾	33¼	26½	25	Lone Star Gas	3,533	34	35	34	34⅜	+ ⅜
58	51	60¼	51	50	Manuf. L. & H	.....	.....	.....	.....	.....	.....
.....	.....	33¼	28⅝	25	Ohio Fuel Corp	9,865	32¼	*34	32¼	33½	+1¼
19	11	16½	11⅛	1	Ohio Fuel Oil	555	14½	14½	14	14¼	— ⅛
66	30¾	40¾	31½	25	Ohio Fuel Supply	.....	.....	.....	.....	.....	.....
24	18¾	28½	22¾	25	Okla. Nat. Gas	2,268	27¾	29¾	27¾	29¾	+1⅜
10½	5¾	9¾	6	5	Pittsburgh O. & G	400	7⅜	8⅛	7⅜	8⅛	+ ⅜
14	5½	10½	6	10	Salt Creek Cons	475	7½	7¾	7¼	7¾	+ ⅛
15½	7	16½	9	10	Tidal Osage	125	10½	10½	10	10½	0
.....	.....	92	92	100	do pfd	.....	.....	.....	.....	.....	.....
29½	23¾	35⅝	27¾	25	Union Nat. Gas	.....	.....	.....	.....	.....	.....

Pittsburgh Curb Market

1923 High	1923 Low	1924 High	1924 Low	Par Value	Stocks	Transactions Week Ended Jan. 30 Sales	First	High	Low	Last	Ch'ge
.....	.....	⅛	⅛	N.P.	Arkansas Fuel w.i.	.....	.....	.....	.....	.....	.....
.....	.....	14	14	25	Barnsdall B	.....	.....	.....	.....	.....	.....
1½	.22	.87	.20	5	Colombia Synd	.....	.....	.....	.....	.....	.....
2¾	.26	.70	.25	5	Duquesne Oil	.....	.....	.....	.....	.....	.....
37	10	9½	5⅜	10	Forest Oil	.....	.....	.....	.....	.....	.....
1¼	1	.15	.15	1	Grant Oil	.....	.....	.....	.....	.....	.....
68	46½	66½	57	25	Gulf Oil Corp	1,700	67½	*70	67½	70	+2½
24½	16⅜	23¾	21	N.P.	International Pet	.....	.....	.....	.....	.....	.....
.....	.....	4½	4½	N.P.	Lago Petroleum	.....	.....	.....	.....	.....	.....
.....	.....	66	64½	50	Manuf. L. & H	.....	.....	.....	.....	.....	.....
8½	4	6	5	10	Marshall Oil	.....	.....	.....	.....	.....	.....
.36	.15	.39	.01	1	Mex. Wyoming	.....	.....	.....	.....	.....	.....
.....	.....	18	18	10	Mountain Prod	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	$5	Mutual Oil	.....	.....	.....	.....	.....	.....
.....	.....	30	29½	$25	Ohio Fuel Corp	.....	.....	.....	.....	.....	.....
.....	.....	41¾	40	25	Ohio Fuel Supply	.....	.....	.....	.....	.....	.....
2½	1⅝	2¾	1½	1	Oklahoma Eastern	16,079	2⅜	2½	2¼	2⅜	— ⅛
2	.60	.77	.45	10	Omar O. & G	.....	.....	.....	.....	.....	.....
.....	.....	126	126	100	South Penn. Oil	.....	.....	.....	.....	.....	.....
22½	7	8	3	5	States Oil	.....	.....	.....	.....	.....	.....
.....	.....	14	10	10	Tidal-Osage non-vot'g	.....	.....	.....	.....	.....	.....

*New High †New Low x Ex Dividend